

# Green Diamond Resource Company, Del Norte and Humboldt Counties, California

---

## Final Environmental Impact Statement

For Authorization for Incidental Take and Implementation  
of a Multiple Species Aquatic Habitat Conservation Plan and  
Candidate Conservation Agreement with Assurances



**Volume 2a**

October 2006

prepared by

**CH2MHILL**

# Responses to Comments

---

This volume contains the responses to public comments on the Green Diamond Resource Company (Green Diamond) Draft Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances (AHCP/CCAA or Plan) and the associated Draft Environmental Impact Statement (DEIS), dated July 2002. It includes a set of 19 Master Responses to issues raised in the comment letters and it also includes individual responses to comments (Attachments 1 and 2). In its entirety, this volume is part of the Final Environmental Impact Statement (FEIS) for the Green Diamond AHCP/CCAA. FEIS Volume I contains revisions to the DEIS, and addresses the potential environmental effects that could result from implementing the Proposed Action and other action alternatives.

Attachment 1 to this volume includes copies of the individual comment letters and their responses, respectively. Each public comment or letter in Attachment 1 has numbered comments, with corresponding responses that answer the specific comments and issues raised in the letter. The comment letters and responses are preceded by an index that includes (1) the document identification number for each letter and (2) the name of the agency (federal, state, or local), organization, or individual that produced the letter of comment. To assist the reader in finding individual letters, the comment letters are organized in the following way:

- Individual Citizens – C
- Federal Agencies – F
- Groups and Private Organizations – G
- Jointly Administered Federal and State Agencies – J
- Local and Regional Agencies and Governments – R
- State Agencies – S
- Tribal Organizations – T

Attachment 2 provides a summary of oral comments received during the September 4, 2002, public meetings on the AHCP/CCAA and DEIS and their responses.

In reviewing the comments received on the DEIS, it was apparent that many commenters raised similar and overlapping issues. Consequently, to aid the decision makers and the reviewing public, the Master Responses have been developed to address key comments raised. The intent of the Master Responses is to provide background and concise responses on each of the commonly raised issues to support the more specific responses included in the response to individual comments. The Master Responses are intended to supplement, but not replace, specific responses to individual comments submitted. The responses are not intended to address every issue raised. The comments fall into the following general categories:

- Baseline Conditions (Master Response 1)
- The “No Action” Alternative and “No Take” (Master Response 2)
- Cumulative Effects (Master Response 3)

- Herbicides (Master Response 4)
- “Likelihood to Recruit” (Master Response 5)
- Relationship between this Plan and The Pacific Lumber Company HCP (Master Response 6)
- The Operating Conservation Program and the California Forest Practice Rules (Master Response 7)
- Permit Approval Criteria (Master Response 8)
- Quantifying Take (Master Response 9)
- Analysis of Alternatives in the Plan and EIS (Master Response 10)
- Disturbance Index/Rate of Harvest (Master Response 11)
- Biological Goals and Objectives (Master Response 12)
- The Role of Foresters and the Practice of Geology (Master Response 13)
- Plan Enforceability (Master Response 14)
- The Adaptive Management Reserve Account (Master Response 15)
- 70 Percent Effectiveness (Master Response 16)
- Road Density (Master Response 17)
- Riparian Widths (Master Response 18)
- Assurances and the No Surprises Rule (Master Response 19)

## Introduction

The Services received many valuable comments and as a result of these many comments, as well as the Services’ continuing evaluation, changes were made to the EIS, although none altered the significant conclusions in the DEIS. Key changes include: revisions to reflect the change in listing of steelhead from the Northern California Evolutionarily Significant Unit to the Northern California Distinct Population Segment; refinements and clarifications to Green Diamond’s proposed Operating Conservation Program and corresponding changes to the discussion in the EIS; and additional information to explain and clarify in greater detail the basis for the cumulative effects analysis in Chapter 4, particularly those sections addressing geology and geomorphology (Section 4.2) and aquatic resources (Section 4.3).

As can be seen from the size of this Volume II, the Services received several thorough comments. Review and response to these comments and preparation of Master Responses were handled by more than one person. While the Services have endeavored to make sure that there are no inconsistencies, in the case where there is an inconsistency between an Individual Response and the Master Responses, the Master Responses reflect the Services’ official position.

## Master Response 1: Baseline Conditions

*Several comments were made regarding baseline conditions. Some comments focus on the EIS, suggesting that use of baseline conditions as the No Action Alternative provides an inappropriate point of comparison. Other comments focus on the Plan, suggesting that data are lacking or insufficient to adequately characterize the baseline conditions (i.e., current habitat conditions and species status). Other comments on baseline conditions do not specify whether the concern relates to the EIS or the Plan. Such comments suggest that, overall, the description of baseline conditions is improper because it identifies as the baseline certain conditions that the comments characterize as “degraded,” including some watersheds with impaired water quality and/or historically heavily managed landscapes. Still other comments assert that the document(s) portray overly favorable or optimistic current conditions and assert that the documents should have considered the die-off of fish in the Klamath River in September 2002.*

### 1.1 Baseline Conditions under NEPA

A discussion of “baseline” is a legal requirement in National Environmental Policy Act (NEPA) environmental analyses, particularly in the evaluation of project impacts and alternatives to a Federal project or action. Baseline conditions often are used in NEPA analyses as a benchmark against which environmental consequences of agency action may be assessed. The courts and Council on Environmental Quality (CEQ) guidance recognize the importance of baseline conditions. *Half Moon Bay Fishermans’ Marketing Association v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988) (“[w]ithout establishing the baseline conditions which exist in the vicinity [prior to implementation of the Proposed Action], there is simply no way to determine what effect [the action] will have on the environment and, consequently, no way to comply with NEPA.”); Environmental Quality, Considering Cumulative Effects under the National Environmental Policy Act (visited January 28, 2003) (<http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm>) (noting the critical role that evaluation of baseline conditions plays in the NEPA process). In other words, baseline conditions can help to establish the degree and type of change in the environment that would result from the Proposed Action and other alternatives under consideration.

### 1.2 Relationship between Baseline Conditions and Conditions under the “No Action” Alternative under NEPA

The EIS includes a comparison of existing baseline conditions and the No Action Alternative. Under the No Action alternative in the EIS, the Services would not issue the requested incidental take permit (ITP) or enhancement of survival permit (ESP) and Green Diamond would not implement the Plan. This means that on-going activities would continue, and would continue to be subject to all applicable laws, including the Endangered Species Act’s (ESA) prohibition on unauthorized take of listed species. Since all of the action alternatives involve management that would occur over an initial 50-year term, conditions in the Action Area will diverge from existing baseline conditions over time. Therefore, the most meaningful comparison for this EIS is with the project (Permit issuance and Plan implementation) and without the project (the No Action Alternative: no Permits, no Plan) over time.

### 1.3 The Use of Best Available Scientific Information and Accuracy of Current Conditions in Satisfaction of ESA Requirements

*Some comments assert that the data are lacking or insufficient in the Plan to adequately characterize baseline conditions in the Plan Area.*

These issues are best addressed by reviewing the data that are presented in the aquatic habitat conservation plan (AHCP)/candidate conservation agreement with assurances (CCAA). The Plan represents an exhaustive chronicle of the best available scientific data known about the Plan Area. Baseline conditions within the Plan Area are described by HPA (Hydrographic Planning Area) in AHCP/CCAA Section 4. Full details of studies and monitoring are found in AHCP/CCAA Appendix C. AHCP/CCAA Section 4 describes and assesses geologic and geomorphic factors and the current status of the covered species, focusing on the following:

- Water temperature
- Instream channel and aquatic habitat conditions
- Instream and recruitment zone large woody debris (LWD)
- Sediment inputs from Class III watercourses
- Salmonid distribution across the Plan Area and abundance in key watersheds
- Headwater amphibian distribution, relative abundance and habitat associates

AHCP/CCAA Section 4 discusses characteristic habitat types in each of the areas as well as existing factors that appear to be limiting for the covered species, their habitats, or the proper functioning of healthy aquatic/riparian ecosystems. These data are the result of efforts that were initiated in 1993 and have continued until the present. The Services believe that the data presented represent the best available science for the purpose of characterizing baseline conditions across the landscape. Much of the data reflects conditions in watersheds that typically would be expected from historic timber harvest operations, e.g., depletion of LWD (especially in the larger size classes), excess coarse sediment, or a combination of the two was found to be the limiting factors. Water temperatures were generally good, and the covered species that should be most sensitive to water temperature, headwater amphibians, are reported to be well distributed throughout the Plan Area (Diller and Wallace, 1996 and 1999). The proportion of streams with populations of headwater amphibians was comparable to estimates from pristine old growth forests. Although the amount of habitat in individual streams has decreased relative to pristine conditions, the populations of amphibians have persisted despite past timber harvest practices. Apparently, a combination of a cool coastal climate and favorable geology in much of the Plan Area has allowed these species to persist. The Plan was developed consistent with the data demonstrating that conservation measures should be designed for site-specific conditions based on site-specific data where available.

In addition, the Services have reviewed the protocols set forth in Green Diamond's studies underlying the Plan measures. The protocols selected were the most current available and were scientifically sound. All of the studies and monitoring have been undertaken in consultation with local and regional experts in the respective fields of study. For example, Dr. Bill Trush of McBain and Trush was retained as a consultant to help develop the long-term channel monitoring protocol. Dr. David Hankin from Humboldt State University was consulted on juvenile salmonid population estimation and Dr. Eric Bjorkstedt from the

National Marine Fisheries Service (NOAA Fisheries) assisted with the development of coho salmon smolt estimates from out-migrant traps. Drs. Tom Lisle and Robert Ziemer from the Redwood Sciences Lab and Frank Ligon with Stillwater Sciences provided input on the Class III sediment monitoring. The headwaters amphibian studies and monitoring was done collaboratively with Dr. Richard Wallace from the University of Idaho. The critical steps of study design and statistical analyses were done with the assistance of Drs. Layman and Trent McDonald of WEST, Inc. In addition, numerous other individuals provided input to the design and analysis of the Plan's studies and monitoring program. The Services believe that care was taken to collect and analyze data in a scientifically valid and meaningful manner.

#### **1.4 Relationship among Baseline, Legacy and Pristine Conditions under NEPA and the ESA**

*Some comments suggest that the use of a baseline that includes legacy conditions and water quality impairment is inappropriate and, therefore, that the subsequent comparative analysis of environmental effects is flawed.*

Environmental conditions attributable to events or activities that occurred in the past also are known as "legacy" conditions. For example, the decline of a well established population of tailed frogs occurred as a result of a failure of a Humboldt crossing installed in the late 1950s or early 1960s on a seasonal road. A large 1996 storm event triggered the failure and large quantities of fine sediment were delivered to the watercourse and torrented down the channel, scouring cobble sized material and depositing fine sediment. The larval portion of this population of tailed frogs was likely extirpated from this watercourse and several years elapsed before tailed frogs were again commonly found in the stream. Current stream channel conditions can be considered to be part of the existing baseline because they can be expressions of legacy events such as this example of a failed Humboldt crossing.

*Other comments suggest that the Total Maximum Daily Load ("TMDL") process was not adequately considered.*

The Plan (AHCP/CCAA Section 4.3.6 and Table 4-3) recognizes that certain waterbodies within the Plan Area are listed as water quality impaired under the Clean Water Act and identified on the 303(d) list because of sediment or other pollution that has occurred in the past, and in some cases is continuing to occur. The Services' Permit issuance criteria require that authorized take occur pursuant to an otherwise lawful activity. As indicated in AHCP/CCAA Section 1.4.2, Green Diamond's activities in the Plan Area remain subject to all other applicable laws, including actions or restrictions that could result from the TMDL process under the Federal Clean Water Act and any other related water quality protection requirements under the State Porter-Cologne Water Quality Act.

*Related comments suggest that "baseline" conditions that equate with "pristine" conditions (pre-commercial timber harvesting activity) or some future ideal condition would be more appropriate than the baseline conditions as described in the Plan and EIS.*

The Services believe that it is appropriate to compare existing environmental conditions and conditions that would result over time under the No Action Alternative (see Master Response 1.2) to the environmental conditions that are expected to result from project implementation. The Services also believe that other characterizations of baseline would not

provide a useful measure for decision-makers to compare the environmental effects of other project alternatives in the EIS.

For more information regarding baseline conditions, see the discussion of the “limiting factors” analysis in Master Response 3, regarding Cumulative Effects.

### **1.5 Baseline Conditions are Degraded and therefore Requires Extraordinary Conservation Measures under the ESA**

*Some comments assert that baseline conditions are so degraded that extraordinary conservation measures must be taken to support viable populations of the covered species.*

As summarized in the Plan, most of the streams in the Plan Area have been impacted by past timber harvesting and other land management activities. The greatest impacts occurred up to the mid-1970s when timber harvesting practices were less protective. Air photographs from that era and field inspection of channel conditions locally provide evidence of substantial past impacts. However, the evidence also indicates that most streams have shown improvement relative to sediment delivery and canopy closure. Full recovery of LWD recruitment rates is a much longer process, and without proactive steps, may take hundreds of years to achieve. Therefore, many of the streams in the Plan Area are recovering from the less protective practices that occurred prior to the 1970s. While many streams in the Plan Area continue to reflect the legacy of these past impacts as sediment gradually works through the larger stream reaches and large woody debris has yet to recruit, the greatest sediment-related impacts have likely already occurred.

*Some reviewers use statistics on the drastic decline range-wide in the number of watersheds that currently support various salmonid species as evidence that the species are in perilous condition.*

The data presented in AHCP/CCAA Section 4 indicate that all of the covered species are still well distributed across the Plan Area. While data are not available on population trends for many of the streams, Chinook salmon, coho salmon, and steelhead have been documented in 64, 97 and 137 watersheds and sub-basins, respectively, in the Plan Area. The difference in distribution among these salmonid species is primarily due to access. The more mobile and athletic steelhead are presumed to be absent (it is practically impossible to prove absence) from only nine sub-basins across the entire Plan Area, because streams in these sub-basins are generally small and of such high gradient that it is unlikely they ever supported anadromous fish populations. Evidence provided in the Plan suggests that Chinook and coho salmon occur in a smaller proportion of watersheds primarily because streams in these areas have natural barriers that limit anadromy to salmon, are too high gradient to have suitable habitat, or are simply too small for salmon.

The headwater amphibian covered species also are widely distributed within the Plan Area. Over 80 percent of the watersheds and sub-basins that have been surveyed have tailed frogs and 75 percent have southern torrent salamanders. The small proportion of watersheds and sub-basins that do not currently support populations of the covered headwater amphibians primarily occur in the southern portion of the Plan Area in regions with geologic conditions that are unsuitable for these species. Based on the lack of these headwater species in pristine sub-basins in the Headwaters Reserve with similar parent geology, it is likely that most of these regions did not support these species historically.



While most of the covered species have experienced declines in population size relative to conditions that existed before humans began active management of the landscape, monitoring data indicate that some watersheds still have robust populations of some of the covered species. This was not apparent until recently for the anadromous salmonid covered species; the cause of such prior declines is unclear but could include poor ocean conditions, as well as the quality of freshwater habitat as a result of timber harvesting and other human activities. However, as referenced in the Plan, since 2001, relatively large runs of salmonids have been documented in the South Fork Winchuck River in the Smith River HPA, Wilson and Hunter Creeks in the Lower Klamath HPA, Little River HPA, Sullivan Gulch in the Mad River HPA, and Ryan Creek in the Humboldt Bay HPA. These examples indicate that populations are variable, and these data (that vary from 1-6 years) reveal high numbers of covered fish species within many of the 11 HPAs. Recent reviews by NMFS (70 FR 37160, 71 FR 834) have determined that the NC steelhead DPS, CC Chinook salmon ESU, and SONCC coho salmon ESU remain threatened. There is limited monitoring data available on the covered headwater amphibians, but the data available for both tailed frogs and torrent salamanders indicate that they are found in many watersheds throughout the Plan Area.

In summary, the Services find that the environmental baseline is characterized accurately in the EIS and the Plan.

## **1.6 The Current Status of Covered Species, the September 2002 Klamath River Die-Off of Fish, and “New Information” under NEPA and the ESA**

*Some comments suggest that the September 2002 die-off of fish should be considered as part of the baseline.*

As discussed above, the baseline as described in the Plan represents existing conditions as a point of comparison against which to measure changes caused by the Proposed Action and in the EIS as a point of comparison for the No Action and other alternatives. Under baseline and No Action conditions, some of the covered fish species are listed as threatened under the ESA (Southern Oregon/Northern California Coast coho salmon, California Coastal Chinook salmon, and Northern California steelhead) and others are not (Klamath Mountains Province steelhead, Southern Oregon and Northern California Chinook salmon, Upper Klamath/Trinity Rivers Chinook salmon, coastal cutthroat trout, and resident rainbow trout). The United States Fish and Wildlife Service (USFWS) estimates that a minimum of 34,056 fish perished during a die-off in the lower Klamath River between September 18 and October 1, 2002. Of these, approximately 97 percent were Chinook salmon, 1 percent were coho salmon, and 2 percent were steelhead (Guillen 2003a). More than 91 percent of the coho salmon were of hatchery origin. The Service concluded that the die-off was a result of a combination of factors including high density of fish, low river discharges, warm water temperatures, and possibly extended residence time of salmon (Guillen 2003b). These factors created optimal conditions for an epizootic of *Ich* and *columnaris*, which was the proximate cause of death. This information has been added to the baseline discussion in the EIS. However, this incident did not change the species' statuses, nor does it affect the analysis or the conclusions in the DEIS or the Plan.

In the Services' view, implementation of the Plan is not likely to jeopardize any of the covered species or adversely modify critical habitat. In the context of the ITP/AHCP, the Plan includes measures to minimize and mitigate the impacts of take to the maximum extent



practicable and to ensure that such take will not appreciably reduce the likelihood of survival and recovery of the species in the wild and that conclusion is not changed by the 2002 fish die-off. In the context of the ESP/CCAA, the 2002 fish die off has not affected the Plan's benefits that, when combined with the benefits that would be achieved if it is assumed that the conservation measures also were implemented on other necessary properties, would preclude or avoid any need to list the unlisted covered species. See AHCP/CCAA Section 1.4.1 and Master Response 8 regarding the criteria for issuance of the Permits.

*Some comments suggest that effects of the die-off rise to the level necessary to trigger re-circulation of the Draft EIS under NEPA.*

Re-circulation of a draft EIS is appropriate when "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts." 40 C.F.R. § 1502.9(c)(1)(ii). A supplemental statement is not necessary every time new information comes to light. *Marsh v. Oregon Natural Resources Council*, 490 US 360 (1989). The die-off has not resulted in a significant worsening of the covered species' condition over that considered in the Draft EIS, and has not changed the listing status of the covered species. Therefore, the new information does not provide a significantly different understanding of the environmental landscape or undermine the conclusion reached under NEPA.

## **Master Response 2: The "No Action" Alternative and "No Take"**

*Some comments suggest that the No Action alternative should include No Take.*

The Services agree that the "No Action" alternative analyzed in the EIS and the Plan (the "No Action" alternative also is referred to in the Plan as "No Permits/No Plan"), must be a no take standard. Under the No Action alternative, unauthorized take of listed species would be prohibited.

### **2.1 The No Action Alternative under NEPA**

The National Environmental Policy Act (NEPA) requires Federal agencies to consider "alternatives to the Proposed Action." 42 U.S.C.A. §4332(C)(iii). Regulations promulgated by the Council on Environmental Quality ("CEQ") provide guidance regarding the range of alternatives that agencies must consider, including a "No Action" alternative. 40 C.F.R. §§1508.25(b)(1), 1502.14(d). In a No Action Alternative, agencies consider the environmental consequences of not taking the Proposed Action and the resulting environmental conditions are the benchmark against which reviewers may compare the other alternatives. In the EIS, the Proposed Action is issuance of permits authorizing incidental take of listed species in accordance with the Federal ESA and Federal policies regarding conservation of unlisted species. Under the No Action alternative, the Services would not issue the requested permits, and Green Diamond would not implement the Plan. Under the No Action scenario, Green Diamond would remain subject to the Federal (and state) ESA prohibitions on unauthorized take of listed species, including all the species that would be covered by the Plan under the other alternatives. The EIS evaluated conditions that would be expected to result over time under the No Action (in relation to existing baseline conditions) and compares them with conditions that are expected to result over time under the Plan or the other three action alternatives described in the EIS.

## 2.2 No Action Alternative and the California Forest Practice Rules

Although the CFPRs expressly prohibit approval of a THP that could cause take, NOAA Fisheries' view is that it is nonetheless possible that the CDF could approve a THP that could result in take of a listed species. In contrast to the risks associated with generic application of the CFPRs, the track record and application of additional programmatic protection measures and site-specific species protection and take avoidance measures applied by the management team for this property, coupled with the NOAA Fisheries history of review of those THPs support the conclusion that it is not likely that take will result from Green Diamond's operations. Under these circumstances, NOAA Fisheries is not required to presume that Green Diamond is violating the ESA take prohibition under the No Action alternative as drafted.

Therefore, for purposes of this NEPA analysis and the internal Section 7 analysis that will follow, NOAA Fisheries makes the following assumptions:

- Green Diamond would continue to follow the practices outlined above
- NOAA Fisheries would continue reviewing THPs submitted to them by CDF (using established protocols for determining those THPs presenting the greatest risk of harm/take to listed salmonids), including THPs submitted by Green Diamond to CDF and would make recommendations to CDF and Green Diamond on measures to avoid the likelihood of harm/take
- Green Diamond and CDF would implement NOAA Fisheries recommendations in approved THPs

## Master Response 3: Cumulative Effects

*Some comments state that the cumulative effects assessment is inadequate in the Plan and EIS.*

Cumulative impacts are relevant to the Services' issuance of the ITP/ESP as well as the NEPA obligation to prepare an EIS. Generally, cumulative impacts under NEPA and ESA 7 are the incremental impact which results from a Federal action, *i.e.*, approving the Permits under the conditions of approval described in the Plan, when added to the impacts of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The two legal authorities that control here (ESA and NEPA) require slightly different analysis of cumulative effects, although the conclusions in this case are the same.

### 3.1 How Cumulative Effects are Addressed to Satisfy the ESA

The cumulative effects analysis looks at whether the incremental impacts of the Federal action will combine with incremental effects of other non-Federal actions to jeopardize the continued existence of any listed species that may be affected by the action. In other words, the relevant issue under Section 7 is whether cumulative impacts associated with Permit issuance will cause jeopardy to any federally listed species.

Section 3 of the AHCP/CCAA describes the covered species' biology and habitat needs. Each of the covered species has a variety of needs for habitat to carry out breeding, spawning, rearing, migrating, sheltering, and feeding activities during each of their life stages. Section 4 sets forth the baseline conditions that exist within the Plan Area. The Plan divides the Plan Area into 11 areas (Hydrographic Planning Areas or "HPAs") and discusses what types of habitat conditions appear to characterize each of the areas, and which may be lacking to assure healthy, functioning aquatic/riparian ecosystems.

Using the factual information developed as a result of the studies described in AHCP/CCAA Sections 3 and 4, the potential impacts of take, including cumulative impacts, are analyzed in Section 5. In order to frame that analysis, the Plan describes the possible environmental effects that could result from the covered activities (AHCP/CCAA Section 2). Some of those effects, individually, in combination, or cumulatively, could cause take to occur. Furthermore, impacts of the covered activities in addition to those that could cause take are addressed in the Plan. For example, lack of LWD inputs into an aquatic ecosystem could result in the failure to: (1) create new habitat, (2) mitigate or exacerbation of other adverse effects on the Species, or (3) declines in existing habitat conditions. LWD creates stream complexity including pool formation, which provides critical habitats for various salmonid life stages. For the amphibian covered species, the availability of LWD causes sorting of the stream substrate, which is important in the creation of riffle habitats, or, when perched above a streambed, it provides cover for the adults. Thus, a reduction in recruitment of LWD through harvesting close to a watercourse could result in delays in habitat formation, which would negatively affect the recovery of the habitat of the covered species within the affected aquatic system. Such impacts, when combined with the impacts that continue to affect the covered species from take authorized under the Plan, as well as past projects and similar projects in other areas in the future, would be expected to negatively affect the species at issue.

Section 5 of the AHCP/CCAA concludes that the effects of certain of the covered activities, without minimization or mitigation measures, could cause take, and that the impacts of such take and related impacts, as illustrated above, could limit or reduce local or regional populations, primarily by limiting the development of appropriate habitat conditions. The impact of unmitigated taking on the covered species in a cumulative sense would be a contribution to or a continuation of any existing threats to the species' survival and recovery. Specifically, AHCP/CCAA Section 5.7 summarizes the potential impacts of take, including cumulative impacts, and describes the cumulative effects analysis process employed.

This analysis of environmental effects of the covered activities which could cause take or other impacts to the covered species has been carried out over the Plan Area. To determine the effects of the covered activities that would be of significance in causing take and otherwise impacting the covered species, Green Diamond's team of biologists determined what types of habitat conditions appeared to be the primary "limiting factor" in assuring healthy, functioning aquatic/riparian ecosystems in each area. They found, generally speaking, that the input of sediment had perhaps the greatest negative effect on the covered species. Low rates of LWD recruitment tend to exacerbate sediment inputs, as would activities that alter hydrologic conditions and affect peak flow events. The goals of the Plan are to avoid or minimize and mitigate these and other environmental effects to the

maximum extent practicable wherever they could occur in connection with the covered activities, and to provide additional measures to improve habitat conditions as compensation for residual impacts, if there are any. Furthermore, to the extent compensation levels exceed residual impacts, an additional Plan goal is to promote recovery of the covered species.

The Plan applies each of the minimization and mitigation measures it identified to address the most significant issues to covered species' habitats across the entire Plan Area. To avoid and minimize individual or cumulative effects that could cause take or which could result in substantial impacts to the covered species, the Plan proposes to avoid, minimize and mitigate the individual environmental effects of the covered activities. As an example of an "avoidance" or "minimization" measure, the Plan's Operating Conservation Program measures relating to road construction, maintenance and upgrading will enable Green Diamond to avoid some road failures/mass wasting events (the environmental effect) that could otherwise occur as the result of faulty or outdated road design, thus avoiding taking that may occur as the result of such failures. As an example of a mitigation measure, the Plan proposes to provide for LWD recruitment by foregoing the harvest of trees that are judged likely to recruit to the watercourse: the input of large wood into a stream is expected to enhance habitat complexity and provide other beneficial effects to all covered species, listed and non-listed alike, including the mitigation of other environmental effects such as sediment.

In addition to the analysis described above, the following analytical mechanism was used to develop measures in the Plan that support the conclusion that the incremental effect of Plan implementation will be positive, and therefore, that implementation will not cause or contribute to negative cumulative effects. Relevant baseline environmental conditions of the 11 HPAs were analyzed and described. As part of this analysis, the habitat conditions or factors that are limiting for the covered species were identified in each of the HPAs. See AHCP/CCAA Table 7-1 and AHCP/CCAA Section 5.7. Measures then were designed to be implemented during the term of the Plan that will provide for significant improvements in each of those conditions (AHCP/CCAA Section 6.2). This limiting factor analysis is not a cumulative effects analysis, a substitute for one, nor are these limiting factors "existing cumulative effects." Instead, the limiting factor analysis provides an informed *baseline* of current conditions, identifies all of the significant habitat conditions that could be affected by timber operations, and allows the development of specific avoidance or minimization measures to improve or prevent decline of covered species and habitat conditions. Baseline conditions also are discussed in Master Response 1. In addition, Green Diamond is undertaking an extensive program to treat old road conditions that represent a current threat to habitat conditions. See AHCP/CCAA Section 6.2.3. Since these roads are legacy conditions, these conditions and their effect on the covered species and their habitats are not a cause of "take" or an "impact of take" by Green Diamond. Thus, the Services believe that these legacy road measures are accurately characterized as mitigation or compensation measures that go beyond "minimizing" the impacts of authorized taking. The obligation to "minimize and mitigate the impacts of take to the maximum extent practicable" and other ESA Section 10 requirements are discussed in Master Response 8.

Although different, HPA-specific limiting factors were identified for many of the HPAs, Green Diamond proposes to apply the conservation measures designed to address each

limiting factor to the entire Plan Area – not just those areas where that particular factor is, in fact, limiting. In other words, the conservation measures will be applied even in those places where the adverse habitat condition did not occur (e.g., the riparian management measures will be applied even with respect to streams where lack of LWD inputs is not noted as a habitat concern). Stated another way, instead of tailoring individual measures to individual problems, the Plan is designed to apply conservation measures Plan Area-wide to mitigate each type of individual and potential cumulative impact that could occur anywhere in the Plan Area. The basic premise is that each individual impact of take and of the Plan generally is completely and fully mitigated, that, because the measures are applied even where they are not needed to mitigate any impact of take, net positive effects will result, and thus cumulative impacts to the species logically will not occur.

### **3.2 How Cumulative Effects are Addressed in the EIS to Satisfy NEPA**

Under NEPA, the cumulative effects analysis looks at whether the incremental impacts of the covered forest management activities as conducted under the proposed action (permit issuance) will interact with the incremental impacts from other actions to result in cumulative impacts on the environment as a whole – not just the listed species. Under NEPA, cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action (permit issuance) when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 CFR §1508.7. The EIS performs a very similar analysis to that conducted in the Plan and reaches a similar conclusion as to potential environmental impacts of implementing the Proposed Action, i.e. the Plan. An overview of the methodology in the EIS’s cumulative effects analysis is in EIS Section 4.1. A summary of the analysis conclusions is presented in EIS Section 4.13. Overall, the EIS concludes that the cumulative result of implementing the resource management programs associated with any of the alternatives, including the No Action Alternative, on public and private lands would be to protect and/or improve aquatic resources and riparian habitat conditions relative to current conditions over time in each of the HPAs.

### **3.3 Geographic Scope of the Cumulative Effects Analysis in the EIS and the Plan under NEPA and the ESA**

Some comments suggest that the geographic range of potential cumulative effects analyzed should be both larger (e.g., the salmonid covered species’ entire range, Humboldt Bay, adjacent parks) and smaller than the area studied. The evaluation of environmental effects assesses impacts throughout the HPAs, on Green Diamond-owned and non-Green Diamond-owned land, and supports the Plan’s provisions allowing for additions and deletions of lands from the Plan Area over the term of the Plan and Permits. These boundaries were selected as large enough to be meaningful to the resources at risk, and small enough not to dilute potential effects. The inclusion of all commercial timber lands in the Primary Assessment Area reasonably extended the direct, indirect, and cumulative effects analysis beyond Green Diamond’s ownership to include areas within the 11 HPAs that are subject to a similar management regime (i.e., commercial forestry activities) and that Green Diamond might manage per the AHCP/CCAA during the term of

Permits, should they purchase these properties or the right to harvest timber on them. The area addressed by the cumulative effects analysis was extended further to encompass the 11 HPAs, including other lands that are predominately either privately owned, administered by a Federal-resource management agency, or are State or Federal park lands. This extension allowed the cumulative effects analyses to incorporate qualitative assessments of those areas subject to significantly different land management regimes, as in the case with RNSP and FS lands, within the 11 HPAs. In some cases, quantitative cumulative effects assessments were possible at the scale of the Primary Assessment Area and beyond, but these assessments were subject to the increasing limitations of data extrapolation. It is also noted that the Plan's contribution towards cumulative effects within any given HPA is significantly influenced by the percentage of the HPA managed under the Plan. In those cases where Green Diamond does not own a significant proportion of the HPA, the effects of implementing the Plan are diluted by the effects of the other dominant land management practice(s). For example, Green Diamond owns 4 percent of the Eel River HPA and the incremental effects of Green Diamond's management can be expected to be significantly diluted and indistinguishable from the effects of other dominant land management regimes in the Eel River. In the case of Redwood Creek, there exist two dominant land management regimes, a federal and state management regime and a commercial forestry regime. Federal and State land ownership encompass approximately 46 percent of the basin and is generally concentrated in RNSP ownership (42 percent ownership of the basin) in the downstream portion of the watershed. Private lands total 54 percent of the watershed, are predominantly managed under a commercial forestry regime, and are concentrated in the upper reaches of the watershed. Green Diamond's ownership is located immediately upstream of the RNSP and totals approximately 17.5 percent of the basin. In this instance, the incremental effects, such as from reducing sediment loading, of implementing the AHCP/CCAA should be distinguishable over time within aquatic habitat in Redwood Creek, when combined with the upstream incremental effects of other commercial forestry activities. However, the cumulative effects of the reduced sediment loading from Green Diamond lands will be substantially less evident or distinguishable moving further down stream through RNSP ownership. The cumulative effects assessment area was not expanded beyond the 11 HPAs in consideration that a similar, though larger scale, dilution of effects would make the effects of implementing the Plan indistinguishable from other land management activities. For example, the incremental cumulative effect of implementing the Plan on the approximately 170,300 acres of combined Green Diamond's ownership within the Coastal Klamath, Blue Creek, and Interior Klamath HPAs would not be discernable among the cumulative effects of all land management activities within the approximately 10 million acres present within the Klamath River basin. The Services believe that the area assessed properly evaluates potential impacts within the geographic area where incremental impacts of the Permits and Plan could combine with other related impacts to result in cumulative effects.

### **3.4 Baseline Conditions in the Plan and EIS**

Regarding issues of "baseline," please see Master Response 1.

### 3.5 Watershed-Level Analysis under NEPA

*Some comments assert that no watershed-level or HPA-by-HPA cumulative effects analysis is included in the Draft EIS and believe that such analysis is necessary.*

The Plan's Operating Conservation Program generally will be applied in the geographic area where the environmental effects of the covered activities are occurring. If harvesting operations are occurring at a more substantial level within specific areas over a certain period, the Plan's conservation measures also will be focused in those areas. For example, instead of setting targets for miles of roads to be decommissioned each year, Green Diamond will prioritize the decommissioning and upgrading of roads on the basis of benefits to the covered species. However, the Services anticipate that, generally, a greater amount of road treatment will be performed in those HPAs with the highest levels of operations at any given time within the Plan's term. In Chapter 4 of the EIS, potential cumulative impacts are assessed for each of several resource categories, including, among others: geology, geomorphology, and mineral resources; hydrology and water quality; aquatic resources; and vegetation and plant species of concern. For most of the resources, the cumulative effects analyses are grouped by HPA. The CEQ guidelines state that cumulative effects analyses should be limited to the effects that can be evaluated meaningfully by the decision makers. The guidelines further state that the area to use in defining the cumulative impacts geographical boundary should extend to the point at which the resource is no longer affected significantly (CEQ, 1997). The Services believe that the EIS's establishment of the geographical boundaries of the HPAs is appropriate and consistent with this guideline

### 3.6 Rate of Harvest under NEPA and the ESA

*Some comments suggest that a discussion of the rate of harvest is necessary to conduct a proper evaluation of cumulative impacts in the EIS and the Plan.*

The Plan discusses the potential that timber operations would alter hydrologic cycles, considers the potential of such alteration to cause take, and discusses the possible impacts of take on the covered species. Removal of trees and road building will, for varying periods, increase surface run-off, potentially affecting peak flows, which could damage salmonid redds or otherwise affect habitat conditions. The magnitude of such effects varies depending on the size of harvest units relative to the size of the watersheds. Harvesting rates are limited practically by an extensive set of state rules that restrict harvest unit size and re-entry timing. The Plan's measures have been designed to build on these existing constraints to minimize the peak flow effects. Further, as discussed above, implementation of the conservation measures will be focused on areas where timber operations are occurring. Upgrading or decommissioning of roads, for example, will occur on a priority basis in areas of harvesting operations where the covered species are most benefited. Therefore, the rate of harvest in any particular area is not essential to the impacts determination. Rate of harvest also is discussed in Master Response 11.



### 3.7 Assessing Cumulative Effects Associated with Lands Added to the Plan Area in the Future under NEPA

*Some comments raise concerns about the cumulative impacts analysis in the Plan and EIS in light of the Plan's provisions for adding lands to the Plan Area in the future.*

Comments correctly note that, under the Plan, the Plan Area can adjust over time to reflect the reality that Green Diamond buys and sells timberlands in the general area where the Plan will be implemented on a regular basis and expects to continue this practice in the normal course of business during the 50-year term of the Plan. See AHCP/CCAA Section 1.3.2 and IA Paragraph 11. Some comments assert that baseline conditions on these lands may differ from baseline conditions on Green Diamond's current ownership – the baseline used for the cumulative impacts analysis in the Plan for comparison in the EIS. The short answer to the question is that acquired commercial timberlands will not be added to the Plan Area unless they share similar relevant characteristics to the lands already included in the Plan.

Green Diamond may only add lands from within the existing 11 HPAs. HPA-specific analysis provided in the Plan supports a presumption that commercial timberlands within each HPA, whether they are included in the Plan Area or eligible for inclusion in the Plan Area, share similar relevant characteristics and, therefore, that adding such lands to the Plan Area during the term of the Permits will not likely result in adverse effects on the covered species different from those analyzed in connection with the original Plan. Characteristics found relevant to planning and implementation of the Plan for each HPA are described in AHCP/CCAA Section 4.4 and may include geology and geomorphology, climate, vegetation, habitat conditions (including water temperature, channel and habitat type, LWD inventory, and estuarine conditions), salmonid population estimates and covered species occurrence and status. However, the presumption of similarity is not conclusive. To add after-acquired properties for Plan and Permit coverage, Green Diamond will have to submit to the Services a description of the lands it intends to add together with a summary of the relevant characteristics that those lands share with existing Plan Area lands within that HPA. If the Services disagree that the presumption holds true for the specific lands proposed and object to their inclusion, the Services and Green Diamond would proceed through an informal dispute resolution process as described in paragraph 13.6.1 of the IA before the lands could be added.

### 3.8 Hydrology under the ESA

*Some comments suggest that the Plan does not adequately address cumulative impacts associated with hydrology.*

Section 5.2 of the AHCP/CCAA contains a discussion of the potential that the covered activities would alter hydrologic cycles, considers the potential of such alteration to cause take, and discusses the possible impacts of such take on the covered species. Removal of trees and road building will, for varying periods, increase surface runoff, potentially increasing peak flows, which could damage salmonid redds or otherwise affect habitat conditions. The magnitude of such effects varies depending on the size of the harvest units relative to the size of the watersheds. As explained in Section 7.2.1 of the AHCP/CCAA, existing state regulations furnish very restrictive limitations on harvesting large blocks of timber within any watershed unit. The Operating Conservation Program will build upon

existing regulatory constraints by both reducing this peak flow effect and by mitigating its impacts. For example, the Plan will reduce soil compaction and disturbance through its harvest-related ground disturbance measures. Further, the road implementation plan treatment/decommissioning measures will reduce any impacts occurring as the result of hydrologic alteration by disconnecting already-existing sources of road runoff (including legacy road conditions) from the streams. The extent of the biological impacts associated with alterations to the hydrologic regime is discussed in the EIS Section 4.3.3.

### **3.9 Herbicides under NEPA and the ESA**

Regarding comments suggesting consideration of herbicide use pursuant to the impacts analysis, please see Master Response 4.

## **Master Response 4: Herbicides**

*Some comments suggest that herbicide use should be a Covered Activity and analyzed as such in the Plan and EIS. Other comments suggest that herbicide use should be considered in the AHCP/CCAA and EIS impacts analyses and that appropriate mitigation measures should be imposed in the Plan. Even though herbicide use is not a Covered Activity, the comments suggest that such measures should be imposed to address what the comments assert are direct, indirect and cumulative effects of herbicide use on species, water quality, food sources and Native American cultural activities.*

*Other comments express concern that pesticide registration and labeling laws do not take into account cumulative effects of site-specific application and comment drafters assert that this issue should be addressed in the Plan and EIS.*

The Services acknowledge that application of herbicides occurs in a managed forest environment. Herbicides can be used to prepare a previously harvested site for planting tree seedlings, minimize resprouting brush, maintain road access and roadbed integrity, or eliminate exotic invasive weeds. Application of forest herbicides can result in both direct and indirect effects on wildlife and their habitats. Direct effects occur when species come in contact with contaminated water, food or sediment. Indirect effects may occur through alterations in nutrient, sediment or temperature characteristics that affect the amount of cover, food or suitable water quality available to the species. Herbicides can enter the aquatic system through direct application or drift from nearby treatment areas. Also, transport of chemicals from upstream, ephemeral channels may affect fish-bearing habitats during the first storms after application.

Green Diamond did not apply for incidental take coverage relating to herbicide use, and the Services have advised Green Diamond that permit coverage of herbicide use would be difficult due to the lack of scientific information and data necessary to assess adequately the impacts of such uses on the covered species. However, general information on Green Diamond's annual use of herbicides on the Plan Area has been added to EIS Section 2 and EIS Appendix C. This general information submitted to the Services by Green Diamond in March of 2004 was insufficient to enable the Services to analyze impacts and to provide incidental take coverage under an ITP or ESP for such uses.

When herbicides are used, the specific herbicides will be selected from those registered by the Department of Pesticide Regulation for use in forestry. A prescription will be developed

at that time by a licensed Agricultural Pest Control Advisor and materials applied by trained and certified applicators according to product label instructions and Federal and State regulations governing the use of pesticides.

#### **4.1 Herbicide Application in the Past and Present is Part of the Baseline Conditions Affecting the Species in the No Action Alternative under the Plan and the EIS**

It is not anticipated that there will be an increase in the amount or types of herbicides applied in the Plan Area as a result of approval of the Permits (see EIS Section 2). Current water quality conditions, including conditions relating to past herbicide application, farming, grazing, fishing, climate change, and residential and other land uses, water withdrawal policies, forestry practices, that have affected the species' status and habitat conditions are included in the baseline. These baseline conditions are properly considered in the evaluation of environmental effects associated with issuance of the Permits.

#### **4.2 Future Use of Herbicides for Cumulative Impacts Consideration under NEPA and the ESA**

*Some comments suggest that herbicide use will be an integral part of Green Diamond's forestry management activities, could cause significant adverse impacts to humans, species and habitats and, therefore, that the potential impacts of future herbicide use should be analyzed in the Plan and EIS and appropriate mitigation set forth in the Plan even though Green Diamond is not seeking incidental take permit authorization for their use. Some comments also suggest that herbicide use should be considered in Green Diamond's cumulative impacts analysis. With respect to future actions, cumulative impacts analysis evaluates the prospect that incremental impacts of Plan implementation could combine with impacts of past, present and reasonably foreseeable probable future actions to cause cumulative impacts to the covered species and the environment.*

Information on Green Diamond's annual use of herbicides on the Plan Area has been added to EIS Section 2 and EIS Appendix C. As a Federal agency, EPA has certain obligations under the ESA. ESA Section 7(a)(1) requires EPA to use its authority, in consultation with the Services in furtherance of the purposes of the ESA. ESA Section 7(a)(2) requires EPA to ensure that its actions are not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. As noted above, incidental take coverage is not provided for herbicide use.

Litigation on use and registration of pesticides (including herbicides) has been ongoing in the courts. In accordance with a recent court order (January 22, 2004) in the *Washington Toxics Coalition et al. v. Environmental Protection Agency* lawsuit concerning the effects of pesticides application on threatened and endangered salmonids, the court found that pesticide-application buffer zones are a common, simple and effective strategy to avoid jeopardy to threatened and endangered salmonids. Further the court found that the use of a 20-yard buffer zone for ground use and a 100-yard buffer zone for aerial application for certain pesticides would substantially contribute to prevention of jeopardy of these species. Green Diamond's use of herbicides will be consistent with the use requirements outlined in this order.

In accordance with deadlines mandated by a recent Consent Decree entered pursuant to a lawsuit between EPA and Californians for Alternatives to Toxics, EPA published for public comment on December 2, 2002 notice of a proposed field implementation approach for the implementation of an endangered species protection program (ESPP) to carry out its responsibilities under FIFRA in compliance with the ESA. 67 Fed. Reg. 71549, 71553 (December 2, 2002). The public comment period closed on March 3, 2003. The proposed ESPP is based on two goals: providing appropriate protection to listed species and their habitats from potential adverse effects associated with herbicide use, and avoiding imposition of unnecessary burdens. EPA's proposed field implementation program broadly applies to all herbicide products that EPA determines may affect listed species. *Id.* at 71557. The use of herbicides by Green Diamond and other landowners will be governed by the results of EPA's current effort and, in the interim, remains subject to existing herbicide regulations.

## Master Response 5: "Likelihood to Recruit"

*Some comments indicate the view that the determination of "likely to recruit" under the Plan is too subjective and so requested clarification of the definition and the intent of the provision*

The Services agree. The "likelihood to recruit" standard is used in the Plan to guide the retention of trees in RMZs that may be the source of future LWD in the stream. Relative terms such as "likely" are inherently difficult to define and suggestions have been provided that may improve on the existing definition. The phenomenon being addressed is the probability that at some future time a given tree will recruit to the watercourse as functional LWD. Since there is no precise mechanism to estimate this probability (i.e., the mechanism, timing and trajectory of a tree falling into the watercourse and providing functional large woody debris), it will remain a subjective estimation. The canopy closure requirements will ensure that a high density of trees will be retained in the riparian zone, but it is important that the trees that are retained are also the ones that have the highest probability of recruiting to the watercourse as functional LWD. The Plan has been modified to incorporate the following new language to make this less ambiguous. In addition a new monitoring program for "likelihood to recruit" has been developed to ensure interpretation of the new language does not change over the permit term.

### AHCP/CCAA Section 6.2.1.2.4 – Retention Based on Likelihood to Recruit

"The following criteria will be used to identify trees within the RMZ as potential candidates for marking to harvest due to their low likelihood of recruitment to the watercourse. (The determination of trees to be marked within the RMZ will be predicated on ensuring that overstory canopy retention standards and slope stability measures are met (see Sections 6.2.1 and 6.2.2), as well as ensuring that trees that are likely to recruit to the watercourse are not marked for harvest.)

Criteria for trees that have a low likelihood of recruiting:

1. Tree has an impeded 'fall-path' to the stream (e.g. upslope family members of a clonal group blocked by downslope stems) or;

2. Tree, or the majority of the crown weight of the tree is leaning away from stream and the tree is not on the stream bank or does not have roots in the stream bank or stream or;
3. The distance of the tree to the stream is greater than the height of the tree or;
4. Tree is on a low gradient slope such that gravity would not carry the fallen tree into the stream or objects such as trees and large rocks impede its recruitment path or;
5. Tree is not on an unstable area or immediately downslope of an unstable area or;
6. Harvesting of the tree will not compromise the stream bank or slope stability of the site, or directly downslope of the site.”

#### AHCP/CCAA Section 6.2.1.4.3 – Retention Based on Likelihood to Recruit

“Riparian management zones along the first 200 feet of the Class II RMZ adjacent to the Class I RMZ will be subject to the same criteria that are listed in Section 6.2.1.2.4 to determine possible candidate trees for marking due to their low likelihood of recruitment.”

#### AHCP/CCAA Section 6.3.1.1.1 #5a and #5b

“The following criteria will be used to identify trees within the RMZ as potential candidates for marking to harvest due to their low likelihood of recruitment to the watercourse [the determination of trees to be marked within the RMZ will be predicated on ensuring that overstory canopy retention standards and slope stability measures are met (See Sections 6.3.1 and 6.3.2), as well as ensuring that trees that are likely to recruit to the watercourse are not marked for harvest].

Criteria for trees that have a low likelihood of recruiting:

[Numbers 1-6 are the same as AHCP/CCAA Section 6.2.1.2.4 above]

#### AHCP/CCAA Section 6.3.1.2.1 #3a and #3b

“Riparian management zones along the first 200 feet of the Class II RMZ adjacent to the Class I RMZ will be subject to the same criteria that are listed in Section 6.3.1.1.1 #5a to determine possible candidate trees for marking due to their low likelihood of recruitment.”

Green Diamond gathered data to estimate the relative change in potential LWD recruitment before and after harvest, to assess the effectiveness of the RMZ measures in terms of potential LWD recruitment to Class I watercourses (see AHCP/CCAA Appendix H). These data were collected and summarized as changes in “full tree equivalents” (FTE). The findings from this assessment work demonstrated that the RMZ measures detailed in AHCP/CCAA Section 6.2.1 were effective in minimizing the loss of trees through harvesting practices that would potentially recruit to the stream as LWD.

The following text has been inserted into AHCP/CCAA Sections 6.2.7:

“Likelihood to recruit audit”

Green Diamond gathered data to estimate the relative change in potential LWD recruitment before and after harvest, to assess the effectiveness of the RMZ measures in terms of potential LWD recruitment to Class I watercourses (see AHCP/CCAA Appendix H). These data were collected and summarized as changes in “full tree equivalents” (FTE). The findings from this assessment work demonstrated that the RMZ measures detailed in Section 6.2.1 of the AHCP/CCAA were effective in minimizing the loss of trees through harvesting practices that would potentially recruit to the stream as LWD. However, the language used to communicate the “Likelihood to recruit” judgment may be susceptible to interpretation so to ensure consistent application of this language, the Services may audit the efficacy of the RMZ measures annually, by selecting three to five harvest units and requiring Green Diamond to gather before/after data and calculate an estimate of relative change in FTE. The protocol used in the potential recruitment of LWD report (Appendix H) will be used in any future audits. If the results of the audit indicate that the FTE values were reduced by more than 3.2 percent post-harvest, then the Services may call a meeting with Green Diamond to recalibrate the interpretation of the likelihood to recruit judgment in the field. The 3.2 percent post-harvest FTE value reduction is a trigger for recalibration of the interpretation. If an agreement cannot be reached in the recalibration among the Services and Green Diamond, then the dispute resolution provisions of Section 6.2.7.5 will be initiated.

## **Master Response 6: Relationship between this Plan and the Pacific Lumber Company HCP**

*Some comments raise concerns about differences between the Pacific Lumber Company HCP measures/requirements and those established in the Green Diamond Plan. Some comments assert that the Pacific Lumber Company HCP measures should be discussed in the AHCP/CCAA to allow commenting parties to compare the two HCPs. Others suggest that prescriptions included in the Pacific Lumber Company HCP should be included as an alternative to the Proposed Action in the EIS.*

### **6.1 Relationship between the Pacific Lumber Company’s HCP Prescriptions and the Measures Set Forth in the Green Diamond Plan’s Operating Conservation Program under the ESA**

*Comments suggest that the conservation measures set forth in the Plan should be the same or greater than those included in the Pacific Lumber Company HCP.*

The purpose of the ESA Section 10 permitting process is not to compare conservation programs measure for measure, but rather to ensure that the criteria for issuing such permits are met, based upon site-specific, species-specific and activity-specific conditions. Furthermore, as explained in more detail below, the Services believe the two conservation plans meet Section 10 criteria even though they utilize different measures. The Services’ HCP Handbook states in Chapter 3:

*Mitigation programs under HCPs and Section 10 permits are as varied as the projects they address. Consequently, this handbook does not establish specific “rules” for developing mitigation programs that would limit the creative potential inherent in any good HCP effort. On the other hand, the **standards** used in developing HCPs must be adequate and consistent regardless of which Service office happens to work with a permit applicant. Mitigation programs should be based on sound biological rationale; they should also be practicable and commensurate with the impacts they address. (Emphasis added)*

*Some comments question why, when Green Diamond’s and Pacific Lumber Company’s holdings are adjacent to one another in some areas, different mitigation and protection standards are applied.*

There is no requirement that the conservation measures in HCPs on nearby lands be the same, so long as each HCP (and in this case AHCP/CCAA) meets the ESA Section 10(a) approval criteria. The Services believe that, where as here, physical and biological characteristics and the management history of land holdings differ between and among adjacent lands, it is appropriate that the management measures and prescriptions should reflect those differences.

*Comments suggest that the conservation measures set forth in the Green Diamond Plan should be the same or greater than those contained in Pacific Lumber Company’s HCP.*

The phrase “consistent with” does not equate to “the same as” and a one-size-fits-all approach would not address site-specific species needs or habitat conditions. There are at least two important differences in the circumstances involved with the two Plans that demonstrate the validity of applying different conservation measures.

One difference was the level of site-specific information available to each applicant at the time its HCP was prepared and the permit applications submitted. Pacific Lumber Company had less information about site-specific conditions within its plan area. Therefore, the resulting interim prescriptions in its HCP are based on assumptions about relevant conditions and relative risks to covered species based on information learned in other geographic areas. The Pacific Lumber Company HCP requires significant scientific studies to be conducted which will provide the basis for adjusting the conservation measures over time to reflect the development of site-specific information. In contrast, Green Diamond’s proposed Plan is based on more site-specific information than was available to Pacific Lumber Company at the time it prepared its HCP. Green Diamond has been studying aquatic resources on its ownership for more than a decade and has extensive, site-specific knowledge about many resource issues. This site-specific information allows for imposition of prescriptions that are tailored to the varying conditions in the Plan Area.

Green Diamond’s Operating Conservation Program is designed to address the specific habitat conditions that appear to be the primary constraint, or bottleneck, limiting maintenance or development of healthy, functioning aquatic/riparian ecosystems in each HPA. In addition, there are significant differences in most of the physical and biological conditions in the two plan areas despite their close geographic proximity. Green Diamond’s studies indicate that there are important differences in the occurrence and distribution of the covered species. One of the most notable examples of such differences is the presence of headwater amphibians. A study on Green Diamond’s ownership (with a few exceptions the same as the current Plan Area) found that 80 and 75 percent of headwater streams had



southern torrent salamanders and tailed frogs, respectively. In addition, currently, there are over 600 and 300 occupied sites known for these two species. It appears that the occurrence of these species in the Pacific Lumber Company ownership is significantly lower. Given that these two species have the least water temperature tolerances of any of the covered species, this is a strong biological indicator of the physical differences in the streams on the two ownerships. Further, these two species also are highly sensitive to sediment inputs that result in embeddedness of the stream substrate. The higher occurrence of the headwater amphibians in the streams on Green Diamond's ownership is evidence of apparent differences in the underlying geology of the two ownerships, despite their close geographic proximity.

Therefore, although some of Green Diamond's and Pacific Lumber Company's lands are near one another, they are different in key respects. These differences in conditions call for differences in conservation measures to address site-specific conditions. Furthermore, the Services recognize that although many of the resource issues may be similar among ownerships (e.g., reducing the frequency of harvest-related mass wasting increases), many different approaches are possible to achieve the goals and objectives. The result – an AHCP/CCAA with different conservation measures than those included in the Pacific Lumber Company HCP – is consistent with ESA Section 10(a) approval criteria and the Services' HCP Handbook guidance.

## **6.2 Pacific Lumber Company Prescriptions as a Project Alternative under NEPA and the ESA**

*Some comments suggest that the prescriptions of Pacific Lumber Company's HCP should have been, but were not, included in the alternatives analysis of Green Diamond's Plan.*

Authors of such comments point to a Federal district court decision indicating that, to satisfy the ITP requirement that an HCP minimize and mitigate takings to the maximum extent practicable, the Services must consider an alternative involving greater mitigation. See *National Wildlife Federation v Babbitt*, 128 F. Supp. 1274, 1291-93 (E.D. Cal. 2000). In *National Wildlife Federation*, the court evaluated whether a development fee, the amount of which had been set at the minimum amount necessary to meet the biological needs of the affected species, met the ITP requirement. In its analysis, the court relied upon a statement in the HCP Handbook that, "particularly where adequacy of mitigation is a close call, the record must contain some basis to conclude that the proposed program is the maximum that can be reasonably required." Because the administrative record contained almost no information on this point, there was insufficient support for a conclusion that the ITP requirement had been met. Here, however, data and analysis in the Plan and EIS demonstrate that the level of mitigation provided provides for incremental improvements over current conditions and the No Action Alternative. See, e.g., the accelerated road program (AHCP/CCAA Section 6.2.3.2.1) and EIS Chapter 4. Therefore, because the adequacy of the mitigation is not at issue, neither the decision nor the HCP Handbook guidance is controlling.

In any case, the Plan and the EIS describe consideration of an alternative that would have involved more extensive mitigation measures than the proposed project. The Pacific Lumber Company HCP was considered but not included as an alternative because the site-specific conditions and species-specific and activity-specific considerations under which the Green Diamond Plan was developed are sufficiently different from conditions in the Pacific

Lumber Company HCP plan area that it would not be appropriate to implement the Pacific Lumber Company HCP in the Green Diamond Plan Area.

### **6.3 Relationship between the Pacific Lumber Company HCP and Cumulative Effects Analysis under NEPA**

The EIS addresses the Pacific Lumber Company HCP in the context of cumulative impacts analysis (see Section 4.1.2 of the EIS), which is the appropriate NEPA context for consideration of that HCP. According to the CEQ Guidelines (40 CFR Section 1508.7), a cumulative impact is the:

*“... impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”*

Because the Pacific Lumber Company HCP meets the NEPA criteria of “other past, present, and reasonably foreseeable future actions” it has been evaluated in the cumulative impacts analysis.

## **Master Response 7: The Operating Conservation Program and the California Forest Practice Rules**

*Some comments question whether the AHCP/CCAA conservation measures are as protective as the California Forest Practice Rules under NEPA and the ESA*

The analysis of potential environmental impacts associated with implementation of the proposed AHCP/CCAA conservation measures is provided in EIS Chapter 4 (Environmental Consequences). Potential impacts are assessed for all alternatives relative to the No Action Alternative (i.e., continued timber harvesting and related operations in the Action Area in accordance with existing State of California and federal regulations, including the CFPRs. As stated in the EIS, impacts to air quality (Section 4.7), visual (Section 4.8), recreation (Section 4.9), and cultural resources (Section 4.10) under the Proposed Action (implementation of the proposed Plan’s Operating Conservation Program) are anticipated to be comparable to the conditions described for the No Action Alternative. On the other hand, impacts to erosion and sediment control (Section 4.2), future water quality (Section 4.3), and future aquatic and riparian habitat (Section 4.4) would improve or trend towards improved conditions under the Proposed Action relative to existing conditions and the No Action Alternative.

## **Master Response 8: Permit Approval Criteria**

*Several commenters raise concerns about the criteria for approving the Permits and questioned whether the Plan complies with those criteria.*

## 8.1 Approval Criteria

The application requirements and approval criteria for an ITP and an ESP are discussed in AHCP/CCAA Section 1.4.1 and EIS Section 1.3

*Some comments suggest that the Plan is flawed because it does not provide for the recovery of species.*

The ESA does not explicitly require an ITP or ESP to recover species. The ESA requires the Services to determine that an ITP may “not appreciably reduce the likelihood of survival and recovery of the species in the wild.” 50 C.F.R. §§17.32(b)(2)(D), 222.307(c)(2)(iii). Applicants for an ESP must, in a CCAA, contribute to efforts to preclude any need to list currently unlisted covered species (the ESP species) by providing early conservation benefits to these species that may be at risk of ESA listing in the future. The standard for issuance of an enhancement of survival permit and CCAA is that the benefits of the Plan for the ESP species, when combined with the benefits for those species that would be achieved if it is assumed that conservation also were implemented on other necessary properties, would preclude any need to list those species. 50 C.F.R. §17.32(d)(2); 64 Fed. Reg. 32726, 32729 (June 17, 1999).

## 8.2 The ITP Obligation to Minimize and Mitigate the Impacts of Taking to the Maximum Extent Practicable

*Some comments assert that the Plan does not satisfy the ESA requirement that an HCP provide measures that minimize and mitigate the impacts of taking to the “maximum extent practicable.”*

As discussed above, to meet the statutory criteria for approval of an HCP/ITP, Green Diamond’s conservation program must minimize and mitigate the impacts of authorized incidental take of covered species that may result from covered activities “to the maximum extent practicable.” The Services provide the following guidance regarding the interpretation of the phrase “to the maximum extent practicable” found in the Habitat Conservation Planning Handbook at 7-3:

*This finding typically requires consideration of two factors: adequacy of the minimization and mitigation program, and whether it is the maximum that can practically be implemented by the applicant. To the extent [] that the minimization and mitigation program can be demonstrated to provide substantial benefits to the species, less emphasis can be placed on the second factor.*

The minimization and mitigation measures proposed by Green Diamond are set forth in the Plan’s Operating Conservation Program Plan (AHCP/CCAA Section 6.2). The Services believe that these measures provide a level of mitigation that is rationally related to the level of take anticipated under the Plan. In addition, the analysis contained in Plan Section 7 demonstrates that implementation of the Plan will improve conditions for the covered species and their habitats relative to existing conditions and relative to the No Action Alternative. The Plan is also designed to meet the ESP/CCAA approval criteria for the unlisted covered species by providing measures that, if applied in other necessary properties, would preclude the need to list such species in the future.

The Services have concluded that the Plan’s conservation measures meet the approval criteria for an ESP/CCAA and an ITP/HCP. The Services believe that the Plan’s conservation measures not only fully minimize and mitigate individual impacts of take by

category and type of impact, but that the activities and management practices under the Operating Conservation Program outlined in AHCP/CCAA Section 6.2 will result in improvements in habitat conditions for the covered species.

## Master Response 9: Quantifying Take

*Comments suggest that the Plan should quantify the level of take, in terms of actual numbers of species or habitat units, in order to comply with the ESA and that uncertainty in the anticipated level of take increases the level of protection and mitigation required to provide for the survival or recovery of covered species.*

The Services believe the Plan adequately addresses issues associated with quantification of take.

ESA Section 10(a)(2)(A)(i) requires that a conservation plan specify “the impact which will likely result from” any taking proposed to be authorized by the permit. As the statute reflects, precise quantification of take anticipated to occur is not required for HCPs to meet this requirement. *National Wildlife Federation v. Babbitt*, 128 F.Supp.2d 1274, 1291 (E.D. Cal. 2000). The Services’ Five Points Policy expressly endorses assessment of habitat alteration as another method to assess impact:

*Section 10(a)(2)(A) requires that an HCP specify the impact which will likely result from the take to be permitted. Both Services require applicants to include certain information about the species to be covered by an HCP. USFWS permit application criteria require identification of the number, age, and sex of such species, if known (50 CFR 17.22, 17.32). NOAA Fisheries application criteria require a description of the anticipated impact, including amount, extent, and type of anticipated taking (50 CFR 222.307). While evaluating an HCP, we use the amount of incidental take as a main indicator of the impact the proposed project will likely have on the species. Identifying the amount of incidental take contributes to the analysis of whether the proposed incidental take permit will appreciably reduce the likelihood of survival and recovery of the species. There are situations where precisely quantifying the number of individuals that are anticipated to be taken is a less effective method than estimating the amount or extent of take in terms of the amount of habitat altered.*

*What is most important is that we are able to assess the impact of the anticipated take on the species. Regardless of how the incidental take is quantified, it must be indicated in the biological opinion the Services complete for the issuance of the permit and on the permit itself. 65 Fed. Reg. 35242, 35245 (June 1, 2000).*

The regulations governing ESPs/CCAAs (50 CFR §17.32[d]) do not call for quantification of take; rather, they only require that the take be incidental and that the probable effects of take will not appreciably reduce the likelihood of survival and recovery in the wild of any species. For these reasons, the Services believe that the Plan is consistent with the requirements of the ESA regarding evaluation of take and its impacts.

## Master Response 10: Analysis of Alternatives in the Plan and EIS

*Some commenters assert that the number and range of alternatives considered in the EIS and the AHCP/CCAA are inadequate, and that other alternatives should be considered.*

The Services believe that the number and range of alternatives considered in the Draft EIS and Plan were both reasonable and sufficient to provide a reasoned choice. *Hells Canyon Alliance v. United States Forest Service*, 227 F.3d 1170, 1181 (9th Cir. 2000); *Northwest Env'l Defense Ctr. v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir. 1997).

### 10.1 The Number and Range of Alternatives Considered in the EIS under NEPA

NEPA does not require that any particular alternative be considered so long as a No Action alternative is sufficiently considered and examined to ensure that the subsequent agency decision is fully informed and well considered. The Services believe that the analysis of alternatives satisfies NEPA requirements regarding the number and range of alternatives considered. NEPA does not require consideration of every possible alternative among an infinite range of alternatives - the selection of the range is bounded by the concept of reason. NEPA requires only those alternatives to be discussed in the EIS that would achieve the purpose and need of the project. *City of Angoon v. Hodel*, 803 F.2d 1016, 1021 (9th Cir.1986) (per curiam) ("When the purpose is to accomplish one thing, it makes no sense to consider the alternative ways by which another thing might be achieved."); *Trout Unlimited v. Morton*, 509 F.2d 1276, 1286 (9th Cir.1974) ("The range of alternatives that must be considered need not extend beyond those reasonably related to the purposes of the project.").

Here, the Services' purpose and need:

*"is to respond to Green Diamond's ITP and ESP application for incidental take authorization pursuant to an HCP /CCAA that provides protection and conservation to listed, proposed, and unlisted species and their habitats consistent with the requirements of Section 10(a)(1)(B) and Section 10(a)(1)(A) of the ESA." (EIS at ES 2 and Section 1.2.)*

In "NEPA's Forty Most Asked Questions," the CEQ addressed the question (Question 1b) of how many alternatives must be discussed when there is an infinite number of possible alternatives:

*For some proposals there may exist a very large or even an infinite number of possible reasonable alternatives.... When there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS... What constitutes a reasonable range of alternatives depends on the nature of the proposal and the facts in each case."*

Here, the alternatives considered included no Permits/no Plan to an expanded Plan Area and expanded covered species list. Other alternatives identified during the scoping process, but eliminated from detailed evaluation are summarized in EIS Section 2.6. According to the USFWS's NEPA Compliance Guidance located in its NEPA Manual, "alternatives should be reasonable and implementable, must be given equal treatment, and must provide clear

choice for the decision maker.” Thus, the EIS “should include an alternative comprising the Proposed Action, a no action alternative, and reasonable alternatives that satisfy the purpose and need(s), to the extent practicable.”

## **10.2 The Number, Range, and Selection of Alternatives Considered under the ESA**

As with NEPA analyses, the ESA does not require the selection of any particular alternative. The Services also believe that the Plan’s alternatives analysis satisfies ESA requirements regarding the number and range of alternatives considered. ESA Section 10(a)(2)(A)(iii) requires, as a condition for incidental take permit issuance, that the applicant submit a conservation plan that specifies “what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized.” See also 50 CFR Sections 17.32(b)(1)(iii)C(3) and 222.307(b)(5)(iv).

In satisfaction of ESA requirements, Green Diamond considered and analyzed four alternatives to the Proposed Action, which is set forth in the Operating Conservation Program – AHCP/CCAA Section 6.2): three specific alternatives and a “no action” alternative. A “Listed ITP Species Only” alternative is discussed in AHCP/CCAA Section 8.2; a “Simplified Prescriptions Strategy” alternative is discussed in AHCP/CCAA Section 8.3; and an “Expanded Plan Area/Species List” alternative is discussed in AHCP/CCAA Section 8.4. The “No Permits / No Plan,” or no action alternative, is discussed in AHCP/CCAA Section 8.1.

## **Master Response 11: Disturbance Index/Rate of Harvest**

*Some commenters express the opinion that the AHCP/CCAA needs to use, and the EIS should have analyzed, a Plan that includes a disturbance index or rate of harvest limit in order to avoid impacts (individual and cumulative) on stream temperatures and sediment delivery. Some comments suggest that the Plan should use a disturbance index or limit the rate of harvest in order to avoid impacts on stream temperatures and sediment delivery.*

The ESA does not require that any specific mitigation measure (such as a limit on the rate of harvest or road density) be included in a conservation program; rather the ESA provides that the appropriate inquiry is whether the Plan as a whole meets the ESA Section 10 approval criteria. For the reasons discussed below, the Services believe neither of these two suggested measures is necessary here.

As a preliminary matter, NEPA does not require that the assessment of potential environmental effects includes any specific subject matter or adopt any particular methodology or impact avoidance measure. Instead, NEPA’s requirements ensure that agency decision-makers have enough information to make an informed decision. The Services believe that this EIS satisfies this requirement.

### **11.1 Selection of Conservation Measures under the ESA**

The selection of specific prescriptions is a matter of the permit applicant’s discretion. The Plan’s Operating Conservation Program, which includes the prescriptions Green Diamond has selected, is set forth in AHCP/CCAA Section 6.2. The ESA does not require that any

particular prescriptive measure be adopted or imposed, but only that the criteria for permit issuance be met. Issuance criteria are discussed in Master Response 8.

In a prescription-based HCP such as this one (see Master Response 12), the biological goals and objectives guide the development of the Operating Conservation Program. The biological goals and objectives of the AHCP/CCAA are based on the habitat requirements and life cycles of the covered species. The goals include: (1) maintain cool water temperature regimes, (2) minimize and mitigate human-caused sediment inputs, (3) provide for the recruitment of LWD into streams, (4) allow for the maintenance or increase of populations of the amphibian covered species in the Plan Area, and (5) monitor and adapt the Plan as new information becomes available. Biological objectives further describe the biological goals. For example, the Plan's biological objective for reducing sediment delivery into watercourses is set forth in Section 6.1.2.2.4.

The Plan includes a comprehensive Operating Conservation Program whose development was guided by the biological goals and objectives. It includes: (1) Riparian Management practices to reduce impacts to salmonid and amphibian habitat, including temperature, nutrient inputs, channel stability, sediment control, and LWD recruitment (AHCP/CCAA Section 6.2.1), (2) Slope Stability measures to control management-related sediment delivery from landslides and landslide-related erosion, thereby reducing take and adverse impacts to the covered species (AHCP/CCAA Section 6.2.2), (3) Road Management measures to reduce sediment delivery into watercourses from road sources, thus providing minimization for any impacts of taking as a result of timber operations, thereby reducing take and adverse impacts to the covered species (AHCP/CCAA Section 6.2.3), (4) Harvest-related Ground Disturbance measures to reduce sediment delivery to watercourses from activities conducted as part of timber harvesting operations (AHCP/CCAA Section 6.2.14), (5) Effectiveness Monitoring to track the success of the Operating Conservation Program in relation to the Plan's biological goals and Objectives (AHCP/CCAA Section 6.2.5), and (6) Adaptive Management to incorporate the results of the Effectiveness Monitoring projects into Plan implementation and provide a basis for modifications to Plan measures over the term of the Permits (AHCP/CCAA Section 6.2.6).

Based upon the Plan and information submitted with it, the Services believe that the Plan meets the ESA approval criteria discussed in Master Response 8. The concept of the application of a maximum disturbance level (index) or rate of harvest within a watershed is based upon an assumption that each acre harvested contributes to an impact that accumulates as a direct ratio to the total acres harvested in a watershed and that some theoretical limitation on the number of acres harvested as a percentage of the watershed will prevent adverse impacts to water resources, including aquatic habitats. No evidence was presented to indicate that imposing a maximum disturbance limit over and above or instead of the measures included in the Operating Conservation Program is needed or in fact would provide greater species protection or improved conservation benefits over the Plan as proposed.

## **11.2 Additional Assurances against Increased Peak Flows ESA**

Green Diamond has provided this additional explanation describing how the CFPRs and the Plan will work together to guard against the possibility that increases in peak flows will result from short-term concentrated harvesting within a watershed. Harvesting age and adjacency



limits in the CFPRs were designed, in part, to guard against the possibility that increases in peak flows or other negative effects would result from short-term concentrated harvesting within a watershed. These rules limit the ability of a landowner to concentrate such harvests. Timberlands managed under the Plan will fall into two general categories: (1) Riparian protection zones (RMZs), including Riparian Slope Stability Management Zones (RSMZ) and (2) non-RMZ areas. Over time, timber stands associated with riparian protection zones will become older, larger and less diverse due to lack of intensive management. Pursuant to AHCP/CCAA Sections 6.2.1.2 and 6.2.1.4, with the exception of intermediate treatments (e.g. pre-commercial thinning) that are conducted with cable yarding prior to stand entry (in such cases, cable corridors will be harvested in the RMZs; see response to comment S1-15), during the life of the Plan, Green Diamond will carry out only one harvest entry into Class I (Class II) RMZs, which will coincide with the even-aged harvest of the adjacent stand. Overstory canopy closure retention standards contained in AHCP/CCAA Sections 6.2.1.2.1 and 6.2.1.4.1 will limit timber harvesting in RMZs during the life of the AHCP/CCAA.

In non-RMZ areas, operations conducted in compliance with the NSO HCP, AHCP/CCAA and CFPRs are expected to maintain a distribution of timber age classes over the Plan Area that will become more diverse in future decades. Watersheds supporting timber stands with fewer age classes at present will tend to have a greater age class distribution in the future as timber harvesting is spread over a greater percentage of the ownership in successive decades. Ultimately, harvesting will be so dispersed over the plan area that a more or less even distribution of age classes will form a mosaic on the landscape.

CFPRs that limit the size of regeneration harvest units and require a waiting period between adjacent harvests ensure the distribution of timber harvests over the forestland ownership. Where vast contiguous areas were harvested prior to the modern CFPRs, the new rules forces a patchwork pattern of harvests. Rule changes to reduce the sizes of regeneration harvest units further increased the distribution of the units. As timber management continues through the years, the dispersion of harvest units is expected to increase to the point where, harvesting will be occurring in virtually every watershed with harvest rates leveling out on a watershed basis. The long-term trend is toward harvesting widely dispersed units over a forestland ownership with disturbance spread more or less equally over the area.

When considered as a whole, implementation of the Operating Conservation Program and compliance with all applicable laws governing activities in the Plan Area, including the CFPRs, NSO HCP and AHCP/CCAA will provide protection for the covered species and their habitats.

### **11.3 Monitoring and Adaptive Management**

The Monitoring and Adaptive Management processes are critical components of the AHCP/CCAA. The monitoring process includes implementation monitoring (AHCP/CCAA Section 6.2.7) to evaluate and document Green Diamond's implementation of and compliance with the provisions of the AHCP/CCAA, and effectiveness monitoring (AHCP/CCAA Section 6.2.5), which focuses on tracking the success of the measures in the Operating Conservation Program. The Adaptive Management Program provides a mechanism to adjust the Operating Conservation Program as appropriate.

Three categories of effectiveness monitoring are rapid response, response and long-term trend monitoring. Rapid response monitoring is expected to provide results on the scale of months to two years. Response monitoring efforts are expected to take at least 3 years to generate useable results while long-term monitoring projects will likely be open-ended with respect to development of results. Specific protocols for effectiveness monitoring are included in AHCP/CCAA Appendix D.

The rapid response and response monitoring projects have measurable thresholds which, when exceeded, initiate a series of steps for identifying appropriate management responses. A two-stage process with “yellow light” and “red light” thresholds has been developed. A yellow light threshold serves as a warning system to rapidly identify and address a potential problem. A red light threshold indicates a more serious condition than a yellow light threshold.

When a yellow light threshold is triggered, Green Diamond will conduct an internal assessment to determine the source of the problem. The Services will be notified within 30 days after it has been determined that a yellow light threshold has been exceeded. The Services and Green Diamond will confer to determine if any specific changes in the Operating Conservation Program are required. Any change would be in accordance with the adaptive management process outlined in AHCP/CCAA Section 6.2.6.1.1.

If a red light threshold is triggered, Green Diamond will notify the Services within 30 days after it has been determined that the threshold has been exceeded. The Services and Green Diamond would confer to determine if any specific changes in the Operating Conservation Program are required. Any change would be in accordance with the adaptive management process outlined in AHCP/CCAA Section 6.2.6. The specific process for handling an exceedance of a red light threshold is detailed in AHCP/CCAA Section 6.2.6.1.2.

When considered as a whole, implementation of the Operating Conservation Program and compliance with all applicable laws governing activities in the Plan Area, including the CFPRs, NSOHCP, and AHCP/CCAA will provide protection for the covered species and their habitats.

## **Master Response 12: Biological Goals and Objectives**

*Several comments suggest that Green Diamond should commit to meet the biological goals and objectives listed in the Plan. Absent such a commitment the comments assert that various aspects of the Plan are deficient and the Plan as a whole fails to meet permit issuance criteria.*

The Services agree that the biological goals and objectives are an integral part of the Plan, and we also believe that the relationship of the Plan’s Operating Conservation Program and Green Diamond’s commitments to the Plan’s biological goals and objectives are consistent with ESA law and policy. There are two ways in which incidental take permittees may structure their HCPs under the Services’ Five Points Policy, which provides the basis for establishing biological goals and objectives in HCPs. Under one approach the biological goals and objectives are enforceable obligations and must be met by the permit applicant. Under the other approach, the biological goals and objectives provide the basis for establishing prescriptions and the prescriptions are enforceable. The first type of HCP is a performance or results-based approach in which the measures incorporated in the plan are somewhat

flexible so long as specified results are achieved. In such a case, biological goals and objectives can be designated the targeted results of the HCP and incorporated into the HCP's operating conservation program. Once biological goals and objectives (the desired results) are incorporated into the operating conservation program, their achievement becomes a requirement of the HCP and ITP.

The second type of HCP is a prescription-based approach in which biological goals and objectives guide the development of the specific measures included in the operating conservation program. In this second case, permittees are only required to implement the measures in the operating conservation program to comply with their permits. Green Diamond has elected to use a prescription-based approach. As discussed in Master Response 8, the Services believe that the Plan, including the Operating Conservation Program, satisfies the ESA permit issuance criteria.

## **Master Response 13: The Role of Foresters and the Practice of Geology**

*Some comments suggest that the Plan provides for foresters to engage in the unlicensed practice of geology by characterizing, analyzing, or mitigating slope stability issues or by adjusting the boundaries of geologic features, including unstable areas or roadways through such areas.*

The Services agree. The Plan language has been clarified in AHCP/CCAA Sections 6.2 and 6.3 to ensure any geologic interpretation or development of unstable slope alternative conservation measures requires review by geologist registered in the State of California as required by state law.

Implementation of the Plan involves and requires close coordination and cooperation between RPFs and registered geologists who will work together to accomplish the designated tasks. Any covered activities that involve geologic issues and require the expertise of a registered geologist would need to be carried out by, or occur under the supervision of, a registered geologist as required by California law. See Business and Professions Code §§7800 *et seq.* These provisions apply within the Plan Area regardless of Plan approval and permit issuance. The Services believe that the Plan's allocation of responsibility among professionals, with the incorporated changes is appropriate.

## **Master Response 14: Plan Enforceability**

*Some comments question the Services' involvement in the Plan's enforcement mechanism, suggesting that enforceability is subjective. The comments suggest that the Services would have an insufficient role in ensuring that Green Diamond will comply with its obligations, arguing that enforcement would occur under the Plan and Implementation Agreement at the discretion of Green Diamond rather than the Services and the vagueness of the language and exceptions to the measures put into questions whether the measure are enforceable.*

### **14.1 Services' Involvement in the Plan's Enforcement Mechanism**

By law, the Services have complete authority to ensure compliance with the Plan and that authority remains intact under the Plan. Also by law and in accordance with the Plan and

the Implementation Agreement (IA), the Services have discretion to inspect the Plan Area to determine whether the Plan is being violated, and to take a variety of actions in the event that it is. In addition, the Plan and IA provide that the Services shall meet annually with Green Diamond for the first five years of the Plan to review and discuss issues of implementation. The frequency of subsequent meetings will be determined at the fifth annual meeting. The Plan (AHCP/CCAA Section 6.2.7.5) and IA (Paragraph 13.6) also contain dispute resolution provisions to provide an avenue to address different views relating to implementation questions, if any, that arise with respect to the Plan following issuance of the Permits.

All applicable HCP conservation measures will be included in individual State timber harvest plans (THPs). The Services can provide their recommendations during the development and consideration of individual THPs. The Services' comments on individual THPs would likely carry more weight under the THP process, as to effects on species under the jurisdiction of the Services.

## **14.2 Vague and Unenforceable Language**

The use of language, such as "where feasible," "if practicable," etc., is subjective, and is intended to provide flexibility for Green Diamond to adjust conservation measures to site-specific conditions. This flexibility may help to ensure that an appropriate level of habitat protection is provided at every site. Site-specific applications of the conservation measures will be reviewed by the Services on an annual basis for the first 5 years of the permits to ensure the intent of the measures are being met, and periodically thereafter.

In addition, new language has been added to the Plan in several places where these subjective phrases are utilized to ensure the Services are notified of those instances where Green Diamond will be utilizing this flexibility to adjust the conservation measures. This notification will provide the Services with an opportunity to review the rationale for these adjustments. This new language is as follows:

Green Diamond will submit to the Services an explanation, justification and a map of the proposed exception as part of the informational copy of the THP notice of filing (see Section 6.2.7.2).

## **Master Response 15: The Adaptive Management Reserve Account**

*Some comments request clarification of the adaptive management reserve account, including what it is, what its purpose is and how it works. Other comments assert that the initial balance in the Adaptive Management Reserve Account is inadequate and not scientifically based.*

The Adaptive Management Reserve Account (AMRA) is one element of Green Diamond's adaptive management program. The ESA itself does not require an HCP to providing for adaptive management, but the "Five Points Policy," an addendum to the HCP Handbook, encourages its use as one of several tools that can be used to meet ESA permit issuance criteria, 65 Fed. Reg. 35242, 35245 (June 1, 2000); HCP Handbook at 3-24 and 3-25. Consistent with this guidance, Green Diamond elected to include an adaptive management component in the Plan. The purpose of the AMRA is to fund adjustments over the term of the Plan and

Permits to the riparian protection measures included in the Operating Conservation Program that are indicated as necessary by conclusive results of the monitoring program. The balance in the AMRA will change with adjustments in the Plan Area size over the duration of the 50-year permit period. The currency for the AMRA is “fully stocked acres” (FSA). An FSA is comprised of a stand with 42,000 board feet per acre (50-year stand with an index of 350 square feet of basal area) and a species composition of 50 percent redwood, 34 percent Douglas fir, 10 percent white woods, and 6 percent hardwoods. The species composition was based on a Plan Area-wide average.

## 15.1 The Account Balance – Risk Base Approach

Green Diamond, with input from the Services, established the AMRA account using a risk-based approach. The opening balance of the AMRA (1,550 FSA) was based on the geographic extent of the Slope Stability Management Zones (SMZ) and the uncertainty of the effectiveness of the SMZ conservation measures (how much tree retention is needed to maintain slope stability). An estimated 8,850 SMZ acres will be managed using single-tree selection, where approximately 35 percent of the volume will be retained. As proposed, the default SMZ prescription is intended to retain approximately 3,100 acres (or  $0.35 \times 8,850$  acres) of fully stocked timberland. To reduce the risk of potentially underestimating the protection needs of SMZs, the opening balance in the AMRA will allow up to a 50 percent increase in the retained volume of standing trees in SMZs. In terms of fully stocked acres, this will equate to 1,550 acres ( $0.50 \times 3,100$  acres = 1,550 acres).

In addition, the AMRA allows for adjustments to the RMZs and could be applied to specific road management plan prescriptions by translating FSAs to funds. The current AMRA will provide assurances to the Services that the RMZ, SMZ and road conservation measures are as protective as analyzed in the Plan while providing Green Diamond with economic assurance that changes to mitigations through adaptive management modifications are not open-ended.

## 15.2 How the Account Works

As mentioned above, the purpose of the AMRA is to provide a mechanism for making changes to the Operating Conservation Program. The account is designed to include a stock of mitigation credit available to be used for changes in the conservation measures over the life of the Plan. It will operate much like a bank account, where the balance fluctuates over time as money is deposited and debited. Deposits and debits to the account will be made: (a) with the addition and deletion of properties which include Slope Stability Management Zones, (b) as riparian protection measures are modified, and (c) as specific road management prescriptions are accounted for over the term of the Plan and Permits.

The balance of the account will fluctuate proportionately with these activities. For example, a change increasing the width of an RMZ or an SMZ will debit the balance, and a decrease in a zone width will credit the balance. Debits and credits will be reflected in the account on an on-going basis and the account will be summarized biennially. Depletion of the AMRA balance by translating FSA to funds for road prescriptions is limited to 2 percent per year of the opening balance (i.e., the equivalent of 31 FSAs). There is no limit on the annual use of the AMRA for RMZ or SMZ modifications.

## Master Response 16: 70 Percent Effectiveness

*Some comments express the view that the establishment of a 70 percent effectiveness baseline to evaluate the effectiveness of the measures regarding steep streamside slopes is arbitrary and has no relevance to biological conditions.*

The Services believe that this 70 percent value is appropriately used in the Plan. The Plan provides that the 70 percent threshold will be used to evaluate the effectiveness of the conservation measure for steep streamside slopes (SSS) protection and ensures that impacts to the habitats do not exceed the levels estimated. This measure is only one of many measures designed to minimize and mitigate the impacts of taking relating to management-caused sediment inputs to stream courses (AHCP/CCAA Sections 6.2 and 6.3). When determining whether sediment minimization measures are appropriate for the biological conditions that are affected by sediment, the entire group of sediment reduction measures should be considered as a whole.

AHCP/CCAA Section 6.1.2 articulates the biological needs, including a brief description of the components of each species' life history, that were considered in developing the goals and objectives for the conservation program. Namely, those needs are that the covered species require cool water temperatures and complex stream habitat morphology and substrates. A discussion of the key life history traits and biological requirements for each of the covered species is set forth in detail in AHCP/CCAA Section 3.2 and Section 3.3. A fully detailed discussion of these life histories and habitat characteristics is located in Appendix A of the Plan.

To reduce sediment delivery to streams, an estimation of the management related sediment sources was utilized in developing the conservation measures (Appendix F). Sediment delivery from SSSs was estimated to be secondary to road related sediment sources (Appendix F). The SSS measures (AHCP/CCAA Section 6.2.2) are intended, primarily, to minimize effects related to loss of slope stability that could occur due to harvesting in steep areas near watercourses, which may cause take or otherwise could impact habitat. Available scientific information on the effectiveness of conservation measures for SSS stability is very limited. It is uncertain how effective the SSS measures will be. Therefore, based on the general sediment budget analysis provided by Green Diamond in Appendix F of the AHCP/CCAA, the Services assumed that the SSS sediment minimization measures would be 70 percent as effective in preventing sediment delivery to streams as compared to not harvesting on these unstable geologic features.

The 70 percent threshold is intended to provide assurance that the SSS measures have, at least, their anticipated level of efficacy, and a trigger for additional action (adaptive management process) if the measures do not. A long-term study (15 years +) will evaluate the SSS measures.

## Master Response 17: Road Density

*Some comments suggest that Green Diamond should limit road density as a mitigation measure in the Plan's Operating Conservation Program.*

Sediment from roads was found to be one of the highest contributors of sediment inputs to Plan Area streams. The Services believe that the Plan's approach to addressing significant sources of sediment in the Plan Area is adequate.

Using road density as the priority metric would not necessarily translate into higher water quality and aquatic habitat health or provide a mechanism for satisfying the permit approval criteria in this case. The condition of the roads in a given watershed alone generally indicates a more relevant measure of road related sediment that may be delivered to the aquatic system. A watershed with a low road density and poor road conditions could have greater road related sediment inputs than a comparative watershed with a higher road density and higher quality road conditions.

Under the road management measures (AHCP/CCAA Section 6.2.3), Green Diamond would decommission a large number of roads and thereby reduce the road density in the Plan Area. However, a road density threshold has not been established. GIS road coverage shows 3,695 miles of road in the 416,531-acre Plan Area. Current projections estimate decommissioning of approximately 1500 miles over the life of the Plan. This estimate does not include road construction of temporarily decommissioned roads, or new road construction. However, throughout the life of the Plan, the mileage of management roads is anticipated to decrease and the mileage of decommissioned roads is expected to increase. The intention of the Road Management Plan is to decrease the mileage of management roads over time. In addition, newly constructed roads will be built to a higher standard than existing roads (see AHCP/CCAA Section 6.3.3.2.1), and therefore are less likely to contribute sediment into streams.

The Plan's Operating Conservation Program places the highest emphasis on reducing significant sediment inputs, and, through its accelerated Road Management Plan (see AHCP/CCAA Section 6.2.3.2.1), the Plan has placed a particular focus on treating high and moderate risk sites that are potential sources of sediment to streams. Green Diamond's implementation of the Road Work Unit prioritization tables described in AHCP/CCAA Section 6.2.3 will be used to determine where to begin road assessments and to implement subsequent treatment. Under the Plan, the treatment of high and moderate risk sites would be accelerated for the first 15 years and the remaining high and moderate risk sites would be treated in the following 35 years. Green Diamond will submit biennial reports that will contain a summary of the roadwork completed including costs, sediment treated, and number of road miles treated (upgraded and decommissioned). By following the Plan's system for prioritizing treatment of sites, the Plan will achieve its objective of reducing the classification of high and moderate risk sites to low risk sites in an accelerated fashion (see AHCP/CCAA Sections 6.2.3.2.1 and 6.3.3.2.5) regardless of whether the treatment of a particular road site is decommissioning or upgrading. Implementation of the Operating Conservation Program will reduce the risk that such sites will fail and deliver significant sediment to Plan Area streams. In this way, the Plan will reduce future sediment delivery.

The Services acknowledge that decommissioning a road has an economic and aquatic resource benefit over maintaining a road through several culvert rotations while having little or no road use. One element of the Plan's road management program is to decommission roads where practicable and reopen them only when they are needed for management purposes. The results of the road assessment will indicate which roads will be treated first for upgrading or decommissioning based on potential future sediment yield, the immediacy of

need for treatment and cost-effectiveness. It is not feasible at this time to identify specifically all roads that will be either upgraded or decommissioned. However, based on past experience, the roads targeted for decommissioning will likely have a higher treatment immediacy and will be targeted first. A likely exception to this expected emphasis on decommissioning is the roads identified in Figure 6-7 (A-C) of the AHCP/CCAA. Green Diamond views these as critical mainline roads (a subset of management roads) that provide the primary access into various tracts, and targets them for upgrading rather than decommissioning. Other management roads will be decommissioned as timber harvesting operations along them are completed and other previously decommissioned roads may be reopened as timber operations along them begin.

## Master Response 18: Riparian Widths

*Some commenters assert that the riparian widths proposed in the Plan and analyzed in the EIS will be too narrow and allow too much activity and, therefore the widths set forth in the Plan would be inadequate to promote proper riparian function.*

Based on the information contained in the Plan and EIS, the Services believe the proposed riparian widths are appropriate. Site-specific data presented in the Plan and EIS indicate that recruitment of LWD is an important and limiting function of Class I RMZs in the Plan Area. This conclusion is based on two comparisons of data in the Plan Area with data from other published sources. The Services have compared in-channel LWD volumes in the Plan Area (reported in AHCP/CCAA Appendix C-2 as a function of drainage area) with published data sets for redwood old-growth (Keller et al. 1995) and managed young-growth (Knopp, 1993) in northwestern California. LWD volumes in the Plan Area are low compared to old-growth volumes reported by Keller et al. (1995), as expected, but are also low compared to managed young-growth volumes elsewhere in the redwood region, as reported by Knopp (1993). The Services have also compared stream temperature data reported in AHCP/CCAA Appendix C-5 with temperature and associated data in Lewis et al. (2000) and find that stream temperatures in the Plan Area are representative of those found through the zone of coastal influence in northwestern California, and that few stream monitoring stations in the Plan Area exceed the threshold MWAT of 17.40C. There is evidence in Lewis et al. (2000) that coastal atmospheric conditions (reduced air temperature and elevated moisture) and canopy closure have an additive effect in regulating stream temperature. As a result of these comparisons, the riparian conservation measures are expected to provide long-term recruitment of LWD to watercourses.

The Services evaluated the proposed RMZ widths against an LWD source-distance curve developed for second-growth redwood in Mendocino County, California (Reid and Hilton, 1998). Source-distance curves are based on in-stream surveys of down trees and tree segments that can be traced to their point of origin as live, standing trees in the riparian zone. Source-distance curves estimate cumulative LWD recruitment potential as a function of the slope-distance between the stream bank and recruitable trees upslope. Source-distance curves are logistic in form, becoming asymptotic as cumulative recruitment approaches 100 percent (for example, see Murphy and Koski, 1989; McDade et al., 1990; Reid and Hilton, 1998). The maximum recruitment distance (at which cumulative recruitment equals 100 percent) is roughly equal to the height of dominant trees in the adjacent riparian area, provided that long-distance landslides are not a dominant recruitment process. Cumulative



LWD recruitment potential can be estimated by substituting the width of a proposed riparian zone for source-distance on the x-axis of the curve.

Six variables were considered in the evaluation: RMZ inner zone width, RMZ total width, managed potential tree height, site potential tree height, site index 100, and site index 120. Methods and results are discussed in detail in Peters (2001). Managed potential tree height is defined as the height a dominant redwood tree would grow in 60 years (112 and 134 feet on site index 100 and 120 lands, respectively). Site potential tree height is defined as the maximum, or asymptotic, height of a dominant redwood left to grow indefinitely (216 and 245 feet on site index 100 and 120 lands, respectively). All four reference tree heights were estimated using site index and height growth equations in Wensel and Krumland (1986). Managed and site potential tree heights are used as rough estimates of maximum recruitment distance in young-growth and old-growth riparian forests, respectively, and enable estimates of the near-term and long-term LWD recruitment potential associated with each proposed RMZ width.

The RMZ width in the Plan are as follows: For Class I streams, inner zone widths of 50 and 70 feet with a total RMZ width of 150 feet; for Class I streams, an inner zone width of 30 feet with total RMZ widths of 70 and 100 feet. The 85 percent and 70 percent canopy closure retention requirements in the inner and outer zones of the RMZs, respectively, would allow for some trees to be removed in the RMZ. However, we did not have sufficient data to estimate the amount of biomass extraction that is likely occurring in the RMZ.

For Class I streams on site index 100 lands, the total RMZ (assuming functional equivalent to a “no-cut” zone) provided for 99 and 88 percent of the estimated total recruitment potential for managed and site potential tree height, respectively. For Class I streams on site index 120 lands, the estimated recruitment potential was 98 and 84 percent (same no-cut assumption) for managed and site potential tree height, respectively.

On second order Class II streams (100-foot total RMZ width), the estimated attainment was 95 and 73 percent for managed and site potential tree height, respectively, for site index 100, and 90 and 67 percent for managed and site potential tree height, respectively, for site index 120. On first order Class II streams (70-foot total RMZ width), the estimated attainment was 85 and 57 percent for managed and site potential tree height, respectively, for site index 100, and 78 and 52 percent for managed and site potential tree height, respectively, for site index 120.

An important function of LWD in both high- and low-order streams is the sorting, storing and metering of streambed sediments. Sorted gravel and cobble streambeds form key spawning habitats in fish-bearing reaches and are a vital habitat feature (escape cover, foraging, water oxygenation, egg laying) for amphibians in low-order reaches (for example, see AHCP/CCAA Section 3.3.2.2). The estimated LWD recruitment potential of the proposed RMZs, summarized above, is lower in Class II streams than in Class I streams. However, this apparent shortfall is offset by differences in the dynamics of LWD in lower-order streams as compared to higher-order streams. Lower-order streams, including most Class II reaches, are characterized by relatively small drainage areas, narrow channel widths, and limited hydraulic energy. In streams in old-growth Douglas-fir forests, mean LWD piece size decreases with decreasing drainage area and channel width (Bilby and Ward, 1989). LWD recruitment per unit of stream length is relatively constant in old-growth systems, so the

results suggest that LWD pieces of all sizes in low-order reaches are less susceptible to long-distance transport during peak flow events and smaller pieces are retained in the channel for longer periods. In managed forests in the redwood region, a similar pattern is evident in the pooled data in Knopp (1993) and in Pacific Lumber Company (2001a, 2001b, 2002), though the results are complicated by the varying harvest histories and amounts of legacy (pre-harvest) wood represented in those surveys.

Conservation measures in the Plan for steep streamside slopes (AHCP/CCAA Section 6.2.2.1) will provide additional benefits to Class I and Class II streams. Slope stability management zones (RSMZ/SMZs) shall be established where streamside slopes are greater than threshold gradients identified in AHCP/CCAA Section 6.2.2.1.1. The RSMZ/SMZs will be substantially wider and more protective than RMZs. The Plan also points out that the stream reaches with steep slopes have a greater probability of actually delivering functional LWD to the stream. The net effect is substantially greater zones of tree retention (200 to 475 feet on Class I streams, 75 to 100 feet on first order Class II streams, and 100 to 200 feet on second order Class II streams) in those regions that will have the greatest potential to provide for the future LWD in streams. The actual proportion of streams throughout the Plan Area that will have these increased retention zones cannot be estimated because of technical limitations in Green Diamond's GIS coverage. However, on-the-ground experience indicates that a substantial proportion of the Plan Area has stream reaches that exceed the threshold slope gradients identified in AHCP/CCAA Section 6.2.2.1.1, thus triggering the establishment of an RSMZ/SMZ. In the SMZ (outer zone of the management zone), only one harvest entry is allowed during the term of the Incidental Take Permit (AHCP/CCAA Section 6.2.2.1.7[3]).

Permitted harvesting in riparian areas can reduce RMZ canopy closure to 85 and 70 percent in the inner and outer zones, respectively. However, the "likelihood to recruit" riparian conservation measures (AHCP/CCAA Sections 6.2.1.2.4 through 6.2.1.2.6) for Class I and portions of some second order Class II streams will ensure that all the trees with the greatest potential for significant LWD function (e.g., LWD recruited by fluvial processes, windthrow, or tree mortality with sufficient size and proximity to the stream that it can influence fluvial processes and provide cover for fish) will be retained. ("Likelihood to recruit" is discussed in Master Response 5). As a result, harvesting in the RMZs will not substantially reduce LWD recruitment potential below the levels we estimated, based on RMZ width. Riparian forests are important in stream temperature regulation, but the relevant attribute is not canopy closure within the riparian zone, but canopy closure directly over the stream channel (Lewis et al., 2000). Stream temperature is partly a function of canopy closure, but also a function of channel width, tree crown width, and quantity of trees along the streambank. The operational result of the "likelihood to recruit" measures (AHCP/CCAA Sections 6.2.1.2.4 through 6.2.1.2.6) is that the closer a tree is to the streambank, the less likely it is to be harvested.

## **Master Response 19: Assurances and the No Surprises Rule**

*Some comments expressed concern that the Services were not following existing regulations for providing assurances for unlisted species under the No Surprises rule.*

There are separate regulations and policies for providing assurances to permittees under Section 10 of the ESA. The Habitat Conservation Plan Assurances (known as “No Surprises”) Rule (50 C.F.R. 17.22(b)(5), 17.32(b)(5), 222.307(g)) provides assurances for ITPs issued under section 10(a)(1)(B) of the ESA. In contrast, the final rule for CCAAs (64 FR 32706) provides assurances for ESPs issued in association with CCAAs under section 10(a)(1)(A) of the ESA.

For this project, NOAA Fisheries is considering issuing an ITP for species under their jurisdiction that are listed under the ESA, as well as for species which are not currently listed, as allowed under current policy and regulation for HCPs and ITPs. Under an ITP, regulations at 50 CFR 17.22(b)(5), 17.32(b)(5), and 222.307(g) state that the assurances provided to the permittee “apply only with respect to species adequately covered by the conservation plan.” “Adequately covered” is defined by regulation (at 50 CFR 17.3 and 222.102) and means, with respect to unlisted species, that a proposed conservation plan has satisfied the issuance criteria under section 10(a)(2)(B) of the ESA that would otherwise apply if the unlisted species covered by the plan was actually listed.

It should be noted that conservation groups have filed a legal challenge to the No Surprises rule, *Spirit of the Sage Council v. Norton* (Civil Action No. 98-1873). This lawsuit or any future court decision that concerns the No Surprises rule for ITPs does not affect the assurances provided by the Services for ESPs. For the unlisted species under the jurisdiction of the USFWS, the USFWS is considering issuing an ESP in association with a CCAA. Such permits are issued under section 10(a)(1)(A) of the ESA and regulations at 50 CFR 17.22(d) and 17.32(d).

Under an ESP, there is no specific requirement to treat unlisted species as if they were listed. However, as specified in regulations and in our CCAA policy, one of the primary issuance criteria for an ESP issued in association with a CCAA is that the USFWS must determine that the benefits of the conservation measures implemented by the property owner under a CCAA, when combined with those benefits that would be achieved if it is assumed that conservation measures were also to be implemented on other necessary properties, would preclude the need to list the species. The USFWS believes that the conservation standard set for this particular issuance criterion is equivalent to a recovery standard and, therefore, negates the need for language requiring unlisted species to be treated as if they were listed in order for applicants to receive assurances under the CCAA policy and regulations [50 CFR 17.22(d)(5) and 17.32(d)(5)].

ATTACHMENT 1

## Responses to Comments

---

Individual Citizens: C

---

## Letter - C1. Signatory -Michael L. Rilla.

### Response to Comment C1-1

Section 10(a)(1)(B) of the Endangered Species Act (ESA) permits "any taking otherwise prohibited by section 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Take means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" [ESA section 3(18)] Based on the best available information and data (see the responses to Comments G10-58 and G10-51), the Environmental Impact Statement (EIS) concludes that the overall amount of sediment delivered to Class I streams in the Primary Assessment Area would likely be reduced as a result of implementation of the proposed road management plan [Aquatic Habitat Conservation Plan (AHCP)/Candidate Conservation Agreement with Assurances (CCAA) Section 6.2.3] and riparian (AHCP/CCAA Section 6.2.1), slope-stability (AHCP/CCAA Section 6.2.2), harvest-related ground disturbance conservation measures (AHCP/CCAA Section 6.2.4), and other measures included in the Operating Conservation Program (AHCP/CCAA Section 6.2) that would occur under the No Action Alternative (EIS Section 4.2.3). In turn, these conservation measures would improve water quality conditions for the covered species (EIS Section 4.3.3; AHCP/CCAA Section 1.3.3), and would also result in an increase in quantity and quality of suitable salmonid spawning gravels, greater survival of salmonid eggs and alevins in the gravels, and increased production of aquatic invertebrates that serve as food for fish and other species (EIS Section 4.4.3.3).

RECEIVED

SEP 27 2002

US Fish & Wildlife Service  
Arcata, CA

9-26-02

Dear, Amedee Brickey and James Bond

C1-1 I'm writing to you regarding the Simpson's Habitat Conservation Plan (HCP). I am opposed to the Simpson HCP because it would harm or kill the wildlife under its incidental take permit and cause run off problems (sediment) in the watersheds affected by Simpson's logging.

Please do not allow the Incidental take permit, because it would be a disaster to the wildlife, trees and watershed.

Thank you for taking time to read my letter. Please reply as soon as possible.

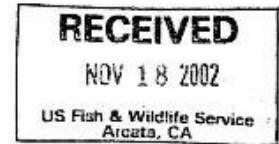
Sincerely,  
Michael L. Rilla

## Letter - C2. Signatory -Charles Minton.

### Response to Comment C2-1

The Plan and EIS address soil stability, the status of the covered salmonid and amphibian species, and the overall health of these species' habitats affected by the Covered Activities (which are described in Plan Section 2) and implementation of the Operating Conservation Program (AHCP/CCAA Section 6.2). The Plan is expected to provide an overall conservation program for minimizing and mitigating the impacts of take on the ITP covered species to the maximum extent practicable, and ensuring that such take would not appreciably reduce the likelihood of survival and recovery of the covered species in the wild. Conservation measures for the covered species (AHCP/CCAA Section 1.3.3) are set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2). Because the Plan is oriented towards aquatic species, the conservation measures focus on a broad range of actions that have the potential to affect aquatic habitat conditions. Such actions include management of riparian management zones (RMZs; AHCP/CCAA Section 6.2.1), implementation of covered activities on geologically unstable areas (AHCP/CCAA Section 6.2.2), and management of roads throughout the Plan Area (AHCP/CCAA Section 6.2.3). The approval criteria for an incidental take permit (ITP) and an enhancement of survival permit (ESP; collectively the Permits) are discussed EIS section 1.3 and Master Response 8.

In accordance with the National Environmental Policy Act (NEPA), an EIS has been prepared by the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS; collectively the Services) to address the overall environmental effects of issuing an ITP and ESP to the applicant (Green Diamond), including the impacts of take on the covered species and impacts on other forest resources.



November 14, 2002

To Amedee Brickey and James Bond:

C2-1

My understanding is that the Aquatic Habitat Conservation Plan and Environmental Impact Statement submitted by Simpson Timber is seriously inadequate. Given the potential magnitude of the impact this could have on critical issues of soil stability, survival of salmon and amphibious species, and overall health of the rivers and forests impacted, this is not acceptable. The AHCP and EIS should be required to actively address all of the above concerns thoroughly and held to the highest standards.

Sincerely,

A handwritten signature in cursive script that reads "Charles Minton".

Charles Minton  
1885 Golf Course Rd.  
Bayside, CA 95524

Charles Winton  
1885 Golf Course Rd  
Bayview CA 95524



Amedee Brickey and James Bond

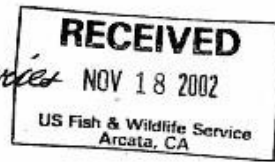
Simpson Timber AHCP

US Fish and Wildlife

National Marine Fisheries

1655 Heindon Rd.

Arcata CA 95521



95521#4573

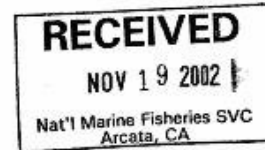
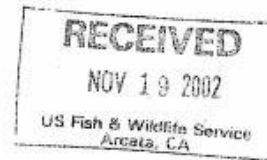




Letter - C3. Signatory - Ron Peterson.

Response to Comment C3-1

Comment noted.



C3-1

#57178

11/14/02

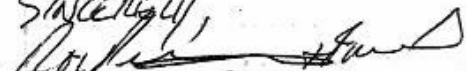
AMEDEE BRUCKEY + JAMES BOND,  
RE: SIMPSON TIMBER AHCP

MY FAMILY SUPPORTS THE JOINTLY SUBMITTED COMMENTS BY THE NORTHWEST ECOLOGY CENTER, PACIFIC RIVERS COUNCIL, PACIFIC FEDERATION OF FISHERMEN'S ASSN., DEFENDERS OF WILDLIFE, EPIC & EARTH JUSTICE.

WE LIVE <sup>NEAR</sup> ~~ON~~ THE SMITH RIVER IN GASQUET CA & HAVE FIRST HAND KNOWLEDGE JUST HOW IMPORTANT THE SIMPSON PLAN WILL BE TO THE HEALTH OF OUR SMITH, Klamath, MAD RIVERS & REDWOOD CREEK FOR THE NEXT 50+ YEAR.

PLEASE INCLUDE OUR COMMENTS THAT WE SUPPORT THE ABOVE IN A PLAN THAT WILL PRESERVE OUR PRECIOUS RIVERS - OUR LIFE BLOOD!

SINCERELY,

  
RON PETERSON + FAMILY

PO BOX 142

GASQUET CA 95543-0142

(PLEASE EXCUSE HANDWRITING - LIMPETIN CRASHED!)

## Letter - C4. Signatory -Patrick Higgins.

### Response to Comment C4-1

Please see responses to Comments C4-3 through C4-29, which address specific concerns raised in this comment. The Plan's and EIS's cumulative effects analyses are discussed in Master Response 3. Plan enforceability is discussed in Master Response 14. The Services note that the EIS satisfies the requirements of NEPA, and that the California Environmental Quality Act (CEQA) is not applicable to the Services' approval of the Permits under ESA Section 10. However, CEQA would apply to State Agency approval of other related activities occurring in the Plan Area (e.g. responses to Comments C4-25, G2-17 and G4-31. Plan approval and issuance of the Permits would not excuse Green Diamond from its obligation to comply with otherwise applicable laws--including CEQA as it applies to discretionary decisions made by State agencies such as approval of timber harvest plans.

### Response to Comment C4-2

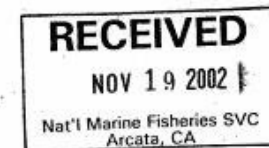
The "current condition of salmonid habitat" is part of the baseline conditions, which are discussed in Master Response 1 and AHCP/CCAA Section 4.4. The draft Operating Conservation Program provided for monitoring and adaptive management and similar provisions are included in the final Plan. See AHCP/CCAA Section 6.2.7 (implementation monitoring), AHCP/CCAA Section 6.2.5 (effectiveness monitoring) and AHCP/CCAA Section 6.2.6 (adaptive management). Approval of the Plan will not change the Services' level of involvement in THP review; in fact, the Services will have additional opportunities to ensure that measures to protect the covered species are implemented through the enforcement of the Plan and Permits.

Patrick Higgins  
Consulting Fisheries Biologist  
791 Eighth Street, Suite N  
Arcata, CA 95521  
(707) 822-9428  
[phiggins@humboldt1.com](mailto:phiggins@humboldt1.com)



Ms. Amedee Brickey  
United States Fish & Wildlife Service  
1655 Heindon Rd.  
Arcata, CA 95521

Mr. James Bond  
National Marine Fisheries Service  
1655 Heindon Rd.  
Arcata, CA 95521



November 15, 2002

Dear Amedee and James,

I am writing to comment on the *Simpson Resource Company Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances and Draft Environmental Impact Statement, Del Norte and Humboldt Counties, California*, or as I will refer to it throughout this dissertation as the Simpson Aquatic HCP and Draft EIS. The Aquatic HCP and Draft EIS are fundamentally flawed in their approach to protecting coho salmon (*Oncorhynchus kisutch*), chinook salmon (*O. tshawytscha*), steelhead trout (*O. mykiss*) and coastal cutthroat trout (*O. clarkii*). The HCP and the companion document do not adequately address cumulative effects and will likely cause a continued decline of fish populations and forest health. What guidance there is provide for protection of resources is compromised by weak language and phraseology that makes the HCP unenforceable. I will provide background which the HCP and EIS failed to on Threatened and Endangered salmonid species and give evidence that shows specific problems not discussed or adequately handled. As the documents currently sit, they are insufficient under both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act.

The Simpson HCP and Draft EIS do not provide data related to the true conditions of fish habitat on their land. No data such as pool frequency by length, average and maximum pool depths were provided to judge the current condition of salmonid habitat. Simpson collected such data but has chosen not to release it because it shows the results of over-logging (see discussions of Canon Creek below). No clear monitoring plan is laid out to check for whether trends in habitat conditions are those expected by the HCP in terms of species and habitat recovery. To be credible, Simpson should offer standard tools for monitoring and a program to implement adaptive management on their lands (see Monitoring section). There is also language in the HCP and Draft EIS that state that the National Marine Fisheries Service (NMFS) will no longer be routinely involved in timber harvest oversight once this HCP is ratified. Consequently, with the ratification of the Aquatic HCP, not only will there be no focused monitoring plan but also no enforcement mechanism for the Endangered Species Act.

Letter - C4

Page 2

### Response to Comment C4-3

The hydrographic planning area (HPA)-by-HPA descriptions of species' status in EIS Section 3.4.4 (*Aquatic Habitat Conditions*) and AHCP/CCAA Section 4.4 adequately characterize the condition of coho salmon and other anadromous salmonid species in the Primary Assessment Area (under NEPA) and in the Plan Area (under the ESA). The Primary Assessment Area and Plan Area are equivalent terms. The Services acknowledge that streams in the Plan Area have been impacted by past timber harvesting and other land management activities (Master Response 1). However, the latest findings of the NMFS Biological Review Team (2003), which include the results of the 2002 California Department of Fish and Game (CDFG) *Status Review* and supercede the 2001 NMFS *Status Review Update*, suggest that there has been no dramatic change in the percent of coho salmon streams occupied from the late 1980s and early 1990s to the present. As reported in the NMFS (2003) analysis, results are generally consistent with those of CDFG (2002), but depart from those of NMFS (2001), which suggested a significant decline in percent occupancy in the Southern Oregon/Northern California Coast (SONCC) coho salmon evolutionarily significant unit (ESU) from 1989 to 2000. This discrepancy resulted from bias in data used in that analysis towards values of "presence," particularly in the late 1980s to mid 1990s. The Services are not aware of any new information that suggests risks beyond those identified in previous status reviews. As such, the Services believe that the characterization of species status in the EIS and the Plan is accurate.

C4-2

Splitting off interior basins from this HCP should not be allowed and these streams were likely left out to avoid obvious problems with water temperatures associated with Simpson's riparian management. Discussions of riparian conditions and their impact on aquatic ecosystems in the Aquatic HCP and Draft EIS lack scientific credibility.

**My Qualifications:** I have been a consulting fisheries biologist working on Pacific salmon species and their restoration since 1988. I have written fisheries elements of restoration plans for the Klamath River (Kier Assoc., 1991), the South Fork Trinity River (Pacific Watershed Associates, 1994), the Garcia River (Monschke and Caldon, 1994) and San Mateo Creek and the Santa Margarita River in southern California (Higgins, 1992). I have also worked in the field for the California Department of Fish and Game, the U.S. Forest Service and as a private contractor. I was the lead author of *Factors Threatening Stocks With Extinction in Northwestern California* (Higgins et al., 1992), which characterized the risk of extinction of Pacific salmon species at that time.

Since 1994 I have been assimilating fisheries, water quality and watershed information into projects that are published both on CD and on the Internet. The Klamath Resource Information System (KRIS) was devised to support the Klamath Basin Fishery Restoration Program and the Trinity River Restoration Program and two versions of the database have been published. Since release of KRIS Version 2.0 for the Klamath/Trinity, I have been working on KRIS projects in a dozen basins for the California Department of Forestry, as part of the California Resources Agency North Coast Watershed Assessment Program (NCWAP), and the Sonoma County Water Agency. From 1994 to 2002 I served on the Klamath Provincial Advisory Committee, a Federally chartered (FACA) group concerned with implementation of the Northwest Forest Plan in the Klamath Basin. It is from this broad based perspective and body of information on which my comments on the Simpson Aquatic HCP and Draft EIS rely.

C4-3

**Status of Pacific Salmon Species:** The Simpson Aquatic HCP and Draft EIS patently fail to characterize the dire condition of coho salmon and other anadromous salmonid species on their property and in the region. In fact, Simpson Timber's watershed management has contributed to the decline of anadromous salmonids, in some cases extirpating or nearly extirpating populations of coho and other Pacific salmon species (Kier Associates, 1999).

The Aquatic HCP and Draft EIS do not properly acknowledge the findings of recent National Marine Fisheries Service (NMFS, 2001) and California Department of Fish and Game (CDFG, 2002) status reviews that highlight the condition of coho populations in the Southern Oregon/Northern California (SONCC) area. The recently released California Department of Fish and Game (CDFG, 2002) *Status Review of Coho Salmon North of San Francisco* stated that:

- "California coho salmon populations have been individually and cumulatively depleted or extirpated and the natural linkages between them have been fragmented or severed.
- The analysis of presence-by-brood-year data indicates that coho salmon occupy only about 61% of the SONCC Coho ESU streams that were identified as historical coho salmon streams by Brown and Moyle (1991) so it does appear that there has been a fairly substantial decline in distribution within this ESU. This analysis and the 2001 presence surveys indicate that some streams in this ESU have may have lost one or more brood-year lineages.

Response to Comment C4-4

See Master Response 3 regarding cumulative effects.

See response to Comment C4-3.

- The inability to detect coho salmon in streams that were historically documented to have contained them and are considered by biologists to contain suitable coho salmon habitat is significant, especially to the high degree that coho salmon were not found in these surveys (59% of all streams surveyed).
- Because of the decline in distribution prior to the 1980s, the possibility of a severe reduction in distribution as indicated by the field surveys, and the downward trend of most abundance indicators, the Department believes that coho salmon populations in this ESU will likely become endangered in the foreseeable future in the absence of the special protection and management efforts required by CESA."

The latter note is significant in terms of the Simpson Aquatic HCP, which proposes continued logging practices similar to or less stringent in protection than current FPR's (see Cumulative Effects section). Coho salmon are likely to be listed under the California Endangered Species Act in the area covered by the HCP.

C4-4

The fact is that there were only seven populations of coho salmon throughout northern California in the hundreds as of 1994 (Brown et al., 1994), with no robust and notable populations on Simpson Timber land. These populations are no longer immediately adjacent to one another and natural mechanisms of replenishment through straying are not likely to operate. Higgins et al. (1992) characterized stocks of Pacific salmon at risk in northwestern California for the Humboldt Chapter of the American Fisheries Society. The report found numerous at-risk populations of Pacific salmon on streams managed by Simpson Timber with categories of high risk of extinction (A), moderate risk of extinction (B), and stocks of concern (C) (Table 1). The Aquatic HCP and Draft EIS have discussions relevant to Higgins et al. (1992), which was reviewed by dozens of fisheries scientists throughout northern California.

Table 1. At-risk status for Pacific salmon species in streams flowing from watersheds managed by Simpson Timber from Higgins et al. (1992).

Stream/Basin	Species	Status
South Fork Trinity	Spring chinook	High Risk
South Fork Trinity	Fall chinook	Stock of Concern
South Fork Trinity River	Summer steelhead	High Risk
Lower Klamath	Coho	Stock of Concern
Lower Klamath	Fall chinook	Moderate Risk
Lower Klamath	Coastal cutthroat	Stock of Concern
Redwood Creek	Coho	Stock of Concern
Redwood Creek	Fall chinook	Stock of Concern
Redwood Creek	Summer steelhead	High Risk
Mad River	Fall chinook	Stock of Concern
Mad River	Coho	High Risk
Mad River	Summer steelhead	High Risk
Mad River	Coastal cutthroat	Stock of Concern
Little River	Fall chinook	Stock of Concern
Little River	Coho	Stock of Concern
Humboldt Bay Tributaries	Coho	Stock of Concern
Wilson Creek	Coho	Stock of Concern
Wilson Creek	Coastal cutthroat	Stock of Concern

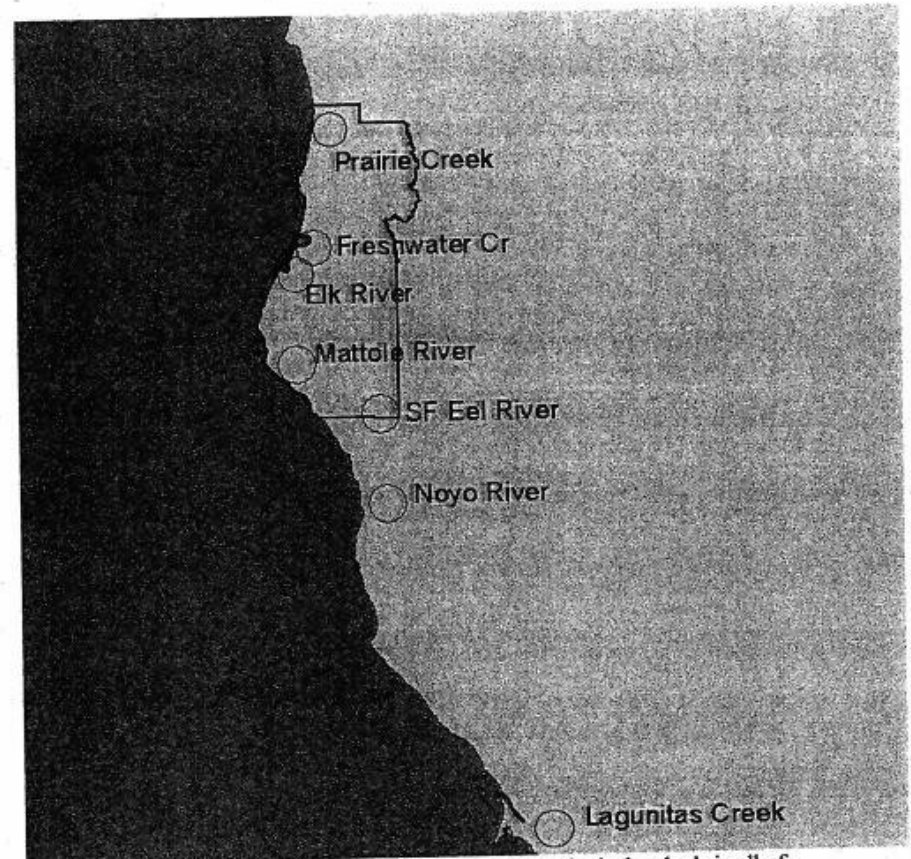


Figure 1. Map showing the last populations of coho salmon in the hundreds in all of northwestern California, according Brown et al. (1994). Note that none of the streams on Simpson Timber land had hundreds of adults.

Higgins et al. (1992) noted that mainstem dwelling species such as green sturgeon (*Acipenser transmontainus*), candle fish (*Thelichthys pacificus*) and adult salmonids such as spring chinook and summer steelhead were also effected by deteriorated mainstem river conditions on large rivers such as the Klamath (see cumulative effects). These conditions in part are owing to logging and erosion in tributary basins (Kier Assoc., 1991; 1999). Coho populations that once spawned at the base of South Fork Trinity River tributaries such as Big Creek and Pelletreau Creek in Hyampom Valley were extirpated by debris torrents off South Fork Mountain, although damage to the watershed and loss of species was prior to Simpson ownership.